Morphology, derivational syntax and second language acquisition of resultatives

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Morphology, Derivational Syntax and Second Language Acquisition of Resultatives

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ABSTRACT

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This thesis explores questions of functional morphology in morphosyntactic theory and in second language acquisition. The work develops Emonds' (2000) notion of a Syntacticon as the store of grammatical lexical items in the Lexicon and it explores the interaction between morphology and syntax in syntactic derivation. The focus of the work is the resultative construction (e.g. *She painted the table red*). As a resultative, the string conforms to a regular syntactic structure and gives rise to an interpretation in which there is an agent that acts upon some object so as to effect some change of state.

In this work, resultative formation in English is contrasted with resultative formation in Korean because the latter, but not the former, includes an obligatory functional result morpheme, *-key*. The proposed analysis of the resultative accounts for both the morphological and syntactic facts in English and Korean. Additionally, traditional notions of subcategorization are developed, using a Feature-based approach in order to explain the lexical restrictions associated with resultatives.

The thesis also includes an experimental study of the acquisition of English resultatives by native Korean and Mandarin Chinese speakers. These languages were chosen in order to highlight the mismatch between Korean and English resultative formation in terms of functional morphology. Accepting the Full Transfer/Full Access model of Schwartz and Sprouse (1996), the whole of the native language is assumed to transfer to form the initial state of second language acquisition. The results of the experimental study provide support for the claim that functional morphology, like that implicated in Korean resultative formation, transfers from the native language to affect the development of the Interlanguage in second language acquisition.

Key concepts: Full Transfer/Full Access, functional morphology, Interlanguage, L1 transfer, lexicon, morphosyntax, resultative construction, second language acquisition, Syntacticon

No part of this thesis has previously been submitted for a degree at the University of Durham or any other university.

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Chapter 1 Overview of Framework

1.0 Introduction

This thesis builds on some of the most basic tenets of Chomskyan linguistics. Firstly, I assume a syntactic component that is transformational, that is, a syntax that derives surface structure outputs from deep structure. Secondly, I accept a view of mental structures as modular. Following Fodor (1983), I assume that the domain of language is separate from that of other modular domains, such as vision or hearing, and separate as well from the domain of general cognition. The syntactic component is autonomous and governed by principles that are particular to language. Related to these notions is a third assumption: the structures required for language are innately given. In the task that all children face in acquiring the complex system that is their native tongue, some form of Universal Grammar (UG) is assumed to limit the linguistic possibilities, thereby facilitating the acquisition process.

While these three notions are largely uncontroversial in mainstream generative linguistics today, the specifics are debatable. For instance, which aspects of language are innate and which are not? Should all of language be considered modular or are certain components of language a part of general cognition? Indeed, how does the language module interface with general cognition? And within the language module, how does the syntactic component interface with other linguistic domains such as the lexicon? And where does morphology fit in the model? Does it comprise a separate autonomous component or is morphology distributed between the syntax and lexicon? These are some of the questions that have guided the development of this thesis.

When thinking about syntactic derivation, I have tried to assume the most restricted scenario throughout, for reasons of parsimony. Accordingly, transformations that apply in the syntactic component are assumed to abide by innately given, universal principles. Yet there is crosslinguistic variation that must be accounted for. In the spirit of the proposals that posit a 'functional lexicon' (Borer 1984, Ouhalla 1991), I build on the notion that much of the crosslinguistic variation that exists can be traced to the properties of lexical items. A clear distinction, therefore, is made between the lexicon and the syntactic component. One guiding aim is to delimit each of these domains such that there is a productive interaction between syntax and the lexicon and redundancy can be eliminated.

Because the model of grammar proposed by Emonds (1987, 1991, 2000) shares this aim, I will use it as my starting point. Within this framework, I explore the properties of certain types of lexical items that are more grammatical than the large inventory of open class lexical items. These "Syntacticon" items include free and bound morphemes which play a crucial role in grammaticality. The framework developed here is unique in the way that the insertion or merge of these lexical items interacts with the syntactic derivation of a string. In this thesis I will propose analyses that depend on the insertion of morphemes at one of three levels in the derivation.[1]

A second line of inquiry in this thesis addresses issues in second language acquisition. Following Schwartz and Sprouse (1996), I posit the starting point of second language (L2) acquisition to be the grammar of the native language (L1), and the development of the Interlanguage (IL) to be constrained by UG.[2] Though the syntactic principles and lexical properties of the native language are assumed to transfer to form the initial state of L2 acquisition, the interaction of L1 transfer and IL development beyond the initial state is not so straightforward. As stated above, syntax is assumed to be derivational. Hence, while the grammar of a language is constrained by a static set of principles, the production of a string is a dynamic process involving syntactic principles and the manipulation of lexical items.

My central question, therefore, is whether the derivations themselves can be said to transfer when an L2 learner parses or produces a string in the target language. Moreover, when languages differ in the way they derive particular constructions, what does this mean for L1 transfer? More specifically, if a language implicates particular functional morphology in the derivation of a string, what effect does this morphological requirement have when it transfers to the grammar of the L2 learner, especially if the target language does not include any analogous morpheme?

In this thesis I will address these questions of morphology in terms of syntactic theory and second language acquisition. In order to better explore these questions, I will focus on one particular construction, the resultative. The resultative

[1] Using alternative terminology, we could refer to these three levels as Merge from the Numeration, Merge during the syntax, and Merge at PF.

[2] Though there are other models of SLA (e.g. Minimal Trees of Vainikka and Young-Scholten, 1996; Valueless Features of Eubank, 1996; the No Transfer position of Epstein, Flynn, and Martohardjono, 1996; the Conservation Hypothesis of Van de Craats, Corver and van Hout, 2000; and the Structure Building Hypothesis of Hawkins, 2001) this thesis is not concerned with evidence for or against the various hypotheses and will therefore not discuss them. Instead, Full Transfer/Full Access is adopted because it predicts across-the-board transfer.

provides an appropriate focus because it raises interesting questions of functional morphology and lexical selection. This construction will be presented descriptively in Section 1.2 after I outline Emonds' model of the syntax-lexicon interface. The final section of this chapter will present the assumptions of second language acquisition that I am adopting.

1.1 A derivational model of language

Emonds' aim is to propose a principled theory of the lexicon based on lexical constraints that interact in a complementary way with syntactic constraints, for the sake of economy. In this section I will first present his notion of an articulated lexicon. This is followed by a discussion of the relevant syntactic principles assumed in this thesis. Then I will discuss the interaction between the lexicon and syntax, beginning with Emonds' ideas about subcategorization and then moving on to his theory of multi-level insertion. Throughout the discussion, it will become clear that there is a crucial role for 'morphology' in this model, yet no 'morphological component' per se is assumed. Instead, morphology is relevant throughout derivation, in terms of both the lexicon and the interaction between the lexicon and syntax.

1.1.1 The lexicon

The lexicon is commonly understood to be an inventory of lexical items particular to a given language. Emonds divides this inventory into open class lexical items that have idiosyncratic semantic content and closed class lexical items that have simple (or no) meanings, but instead seem to fulfill certain grammatical functions in a language. The former are classified as comprising the Dictionary, while the latter comprise the so-called Syntacticon. The notion of a Syntacticon is akin to the intuition within much of current theory that crosslinguistic differences can be traced to a functional lexicon (Chomsky 1995). The idea is that children must choose the functional elements unique to their native language from the total possible options given by UG.

The Dictionary and Syntacticon in combination comprise the Lexicon. One basic criterion that distinguishes members of the two components is semantic 'heaviness'. Lexical items are comprised of semantic features of two basic types.

Purely semantic features are the idiosyncratic meanings that are associated with particular lexical items. In this model these features are notated as *f* features. The second type are syntactically relevant cognitive Features, referred to as F Features.[3] These Features are considered syntactically relevant cognitive Features because they play a role in the syntax, yet have some degree of meaning as well.

Unlike Syntacticon items, open class Dictionary items by definition instantiate idiosyncratic *f* features; yet they also bear F Features. Examples of nominal Features include [CONCRETE] and [ANIMATE], while [ACTIVITY] and [PAST] are examples of verbal Features. So, Dictionary items include contentful words such as *feed* and *pig* which carry [ACTIVITY] and [ANIMATE] Features, respectively, in addition to their real world *f* features. Syntacticon items, by contrast, do not instantiate any *f* features, but have only F Features. Examples include the preposition *in* and the causative use of *make* which bear the [LOCATIVE] and [CAUSE] Features, respectively, but do not contain any idiosyncratic meaning.

Cognitive Features such as [ACTIVITY] and [ANIMATE] are assumed to belong to a set of syntactically relevant Features that are specified by UG. While the exact number a properties of Features is a matter for research, the assumption is that they form a delimited class. These F Features contrast with the purely semantic *f* features which do not play any role in Universal Grammar. As will be discussed shortly, F Features are syntactically relevant in that they are implicated in the syntactic process. Yet, they embody a degree of meaning at the same time; they are not purely grammatical and devoid of meaning. This degree of meaning can be viewed as a kind of semantic primitive. From this perspective, then, it is correct to say that at a basic level, meaning is the basis of syntax. Arguably, this is not a radical claim since lexical items are uncontroversially understood to embody meaning. The potentially more controversial claim is that certain basic components of meaning, viz. Features, have an effect on the way lexical items are combined in the syntax.[4]

1.1.2 Syntax

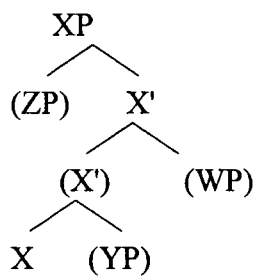
Since one guiding aim in this framework is to avoid redundancy by

[3] In this thesis I too will distinguish between syntactically relevant Features with a capital F, and idiosyncratic features as *f*.

[4] The Minimalist Program (Chomsky 1995) also makes reference to features such as EPP or Agreement features, which are 'strong', triggering movement, or 'weak' with no associated movement. This use of features is not adopted here; thus feature checking is not developed in any central way in this thesis.

distinguishing those principles that constrain the lexicon from those that are part of the syntactic component, it is necessary to specify the syntactic principles that are assumed. In keeping with basic premises of generative linguistics, I assume that the aim of syntactic principles is to delimit the possible configurations that a grammar can produce. Indeed, UG in its purest sense is generally understood as this set of constraining universal principles. Thus, one basic syntactic constraint given by UG is X'-theory which generates structures like the tree in (1) in which a head, X^0, projects a maximal projection, XP, and allows for additional structure via an X' level. This structure also allows for a specifier position, ZP, if there is a need, as well as any complements, YP, or adjuncts, WP.

(1)



A second syntactic universal is the extended projection of structure in which NPs are assumed to further project DP structure, and VPs project IP structure. Complementing these universal principles of X'-theory and extended projections are a limited set of (ideally binary) syntactic parameters that contribute to the difference between grammars of different languages. For instance, I assume that UG includes a headedness parameter that is set as head-initial or head-final based on input. Hence, there is a general degree of crosslinguistic variation that can be traced to the component of syntax proper.

Additionally, the syntax is assumed to be derivational in the sense that lexical items selected from the lexicon are combined following the principles of syntax and may undergo transformations in the syntax before interfacing with logical form (LF) and phonological form (PF).[5] The interaction between lexical insertion and syntactic derivation is crucial to this theory. It is to this interaction that we now turn.

[5] This initial 'selection' of lexical items can be likened to the notion of Numeration in the Minimalist Program. And lexical insertion in the derivation may be termed Merge. The use of these terms in this thesis is intended to be theory neutral, however, and not any refinement of the notions used in current Minimalist models.

1.1.3 The interaction between the lexicon and syntax

In the framework developed in this thesis, the derivation of a string rests crucially on the properties of specific lexical items as they interact with general principles of syntax. This is relevant for contrasting numeration with subcategorization and in terms of lexical insertion, which occurs at different levels. I present the two mechanisms of subcategorization and multi-level insertion in the next two subsections, respectively.

1.1.3.1 Subcategorization

The idea that lexical items constrain and are constrained by other items in a given string has deep roots in the generative tradition, dating back to Chomsky (1965). Lexical entries in this model (both Dictionary and Syntacticon) can specify selection restrictions, in terms of F Features, as the first step in derivation.[6] As illustration, consider the following data discussed by Emonds (2000), which show that even though a verb like *glance* selects a complement, it does not select just any complement.

(2) a. Hilda glanced at the results.
b. * Hilda glanced the newcomer.
c. * Hilda glanced on the table.

The contrast between (2a) and (2c) shows that it is not good enough to say that *glance* selects a prepositional phrase. Instead, the selection restrictions of the verb *glance* can be explained if the entry is assumed to specify the syntactically relevant Features of its complement. The cognitive Features proposed by Emonds in this case are [SPACE] and [PATH] (2000: 327). The constituent *on the table* in (2c) is ungrammatical because it does not satisfy the [PATH] requirement of this verb; the constituent, *the newcomer* in (2b), by contrast, violates both the [PATH] and [SPACE] requirements. Notice that in this model there is the possibility of selection of Features in addition to more broad category specification, i.e. subcategorization. This approach to lexical entries is referred to as Semantic Atomism in Emonds' earlier work.

[6] It is not clear in Emonds (2000) whether subcategorization can apply to *f* features as well. Such an extension is not compatible with the analyses developed in this thesis, however.

(3) Semantic Atomism
A lexical entry may stipulate non-predictable (=item-particular) relations with a complement only by subcategorization for the complement and for its intrinsic features. (Emonds 1991: 390)

In sum, Emonds' work is an extension of fundamental assumptions in traditional Chomskyan linguistics in which lexical items, listed in a lexicon, contain basic syntactic, semantic and phonological information. An example of a lexical entry for a word like *glance*, then, is as follows.

(4) glance, V, *f*, <P, [SPACE], [PATH]>

By this notation, *glance* represents the entry's phonetic information, indicated here by standard spelling. The V indicates that this lexical item is a verb and the *f* signifies the arbitrary meaning associated with the word. Lastly, the entry specifies its selection requirements, notated in angled brackets, < >. The complement in this case is a preposition, P, that instantiates specific Features which are given between square brackets, [ ], in small capital letters.

As made explicit above when discussing the lexical entry for *glance,* a verb specifies not only the category of the complement that it selects, but the particular Features of that complement. Notice also that the selection is for the lexical head of the complement and not a maximal phrase. This mechanism, labeled Generalized Subcategorization (Emonds 2002a: 286), is possible because of the way in which grammatical principles are divided between the lexicon and syntax. Lexical entries do not need to make reference to any functional structure nor any phrases because the projection of structure is a universal principle of the syntactic component. Thus, selection can be seen as the specification of the Features of a required lexical item. For grammaticality, an appropriate item must be chosen from the numeration.

Then principles of syntax apply after Merge of the head of a phasal domain. The syntactic configuration of a verb and its selected lexical item at deep structure is sisterhood. The inserted lexical item is the head and X' structure is projected. If X is an N or a V, then by extended projections, additional DP or IP structure will be projected in the syntax. Thus, selection is assumed to apply in a sisterhood configuration, but with an extended notion of sisterhood: there will be intervening functional nodes. To reiterate, then, selection itself is said to hold for *lexical* heads.

Another principle that does not require stipulation in particular lexical entries

is linear word order, since the projection of head initial/final structure is determined by the syntactic component based on the setting of this parameter for the language in question. Thus, one strength of this model is the way in which it simplifies lexical entries by reducing redundancy where more general principles can be attributed to the syntactic component.

Another promising aspect of this theory is the way that lexical insertion into the derivation at different 'levels' can account for a range of syntactic phenomena. This notion of multi-level insertion is introduced in the next subsection.

1.1.3.2 Multi-level insertion

Dictionary and Syntacticon items differ in terms of the level at which they enter the derivation. The former are merged pre-derivationally to form the initial structure of a syntactic derivation. Syntacticon items, by contrast, can be inserted either pre-derivationally *or later in the derivation.* There are two types of late insertion; the first is insertion in the syntax to fulfill a (language particular) requirement for syntactic derivation, while the second is post-syntactic insertion to satisfy (language particular) phonological requirements. So, lexical insertion is an operation that occurs throughout derivation at three different 'levels'.[7]

There is a connection between the level in which a lexical item enters the derivation and the feature content of that item. We have already considered two types of features. In addition to *f* and F features, however, there are lexical items that contain purely syntactic Features that have no meaning and thus, contribute nothing to LF. These 'uninterpretable' Features are notated as F' Features to distinguish them from the F Features that are interpretable at LF. To exemplify, those Features instantiated by the third person *-s* agreement morpheme and the case assigning *of* preposition in a phrase such as *sack of potatoes* are assumed to be irrelevant to LF. These contrast with cognitive F Features, such as a Feature like [LOCATION] of the preposition *in* that does contain a degree of meaning and is interpretable at LF

Another defining aspect of this theory is that this three-way distinction of features corresponds to three levels in which a morpheme can enter the derivation: i) pre-derivationally, ii) in the syntax or iii) after spell out at PF. To better explain this

[7] It is assumed that derivation is cyclical. The actual domain of a cycle or phase, however, is not explicitly stated by Emonds (2000). We will return to this issue in Chapter 3 when discussing the derivation of Korean resultatives.

idea of multi-level insertion, consider the following sentence.

(5) She makes John feed the pigs scraps of garbage when he visits.

The Dictionary items, *feed, John, pig, scrap, garbage* and *visit,* form the numeration prior to any syntactic derivation; the causative *make,* the pronouns and the articles are late inserted in the syntax; and the case marking *of* as well as the 3rd person *-s* and plural *-s* are inserted after spell out at PF.

In order to illustrate the theory of multi-level insertion and to illustrate how the difference in level of lexical insertion has ramifications in syntax, Emonds (2000, 2002b) analyzes the *-ing* suffix in English. It has long been noted that some derived nominals seem to act more like nouns while others seem to retain more verbal qualities (see Chomsky 1970, Grimshaw 1990). Accordingly, so-called result nominals are more noun-like (6), and event nominals more verbal (7).

(6) Those two ancient **writings** on parchment are worth millions.

(7) The **writing** of love letters on parchment was a common practice.

The difference between the two types of nominals arises because the *-ing* of result nominals is affixed to the verb from the start of derivation (i.e. inserted pre-derivationally), while the default *-ing* of event nominals enters the syntax later in derivation (i.e. in the syntax). Because the affix is inserted before derivation, the result nominal is a noun throughout derivation. Result nominals contrast with event 'nominals' which, at deep structure, are verbs that select direct objects, permit adverb modification, etc. The late insertion of the noun suffix *-ing* then results in a change of category status from verb to noun, but only later in the derivation. Thus despite their verbal behavior, event nominals are – by the end of the syntactic derivation – nouns.

By this theory, the difference in level of insertion entails a difference in features which gives rise to a difference in interpretation. Returning to the example above, the *-ing* of a result nominal interacts with an *f* feature that denotes a specific property which will give rise to specific result interpretations. The *-ing* of event nominals, by contrast, has no purely semantic meaning, but instead only a syntactically relevant F Feature, presumably a feature canonically associated with nouns.

Finally, these nominals contrast with a purely PF, i.e. post-syntactic,

instantiation of *-ing* that occurs in gerunds.

(8) **Writing** love letters on parchment was a common practice.

This *-ing* spells out a purely syntactic category N which does not contribute to LF, but instead serves the sole purpose of allowing for distribution as a nominal. Accordingly, these nominals are completely verb-like except for their occurrence in positions reserved for nouns.

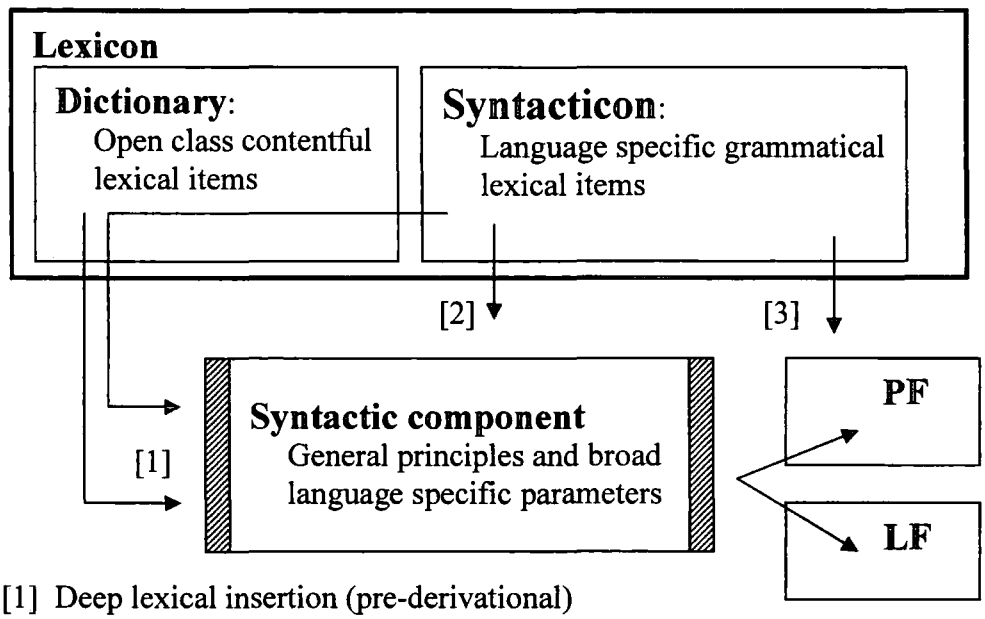
The PF insertion of the gerundive *-ing* contrasts with a second kind of PF insertion. The insertion of a bound Syntacticon morpheme at PF, like the aforementioned third person agreement *-s,* is qualitatively different from these other types of word formation. Agreement seems to be a kind of language-specific identification mechanism. Emonds proposes that a morpheme such as agreement is *alternatively realized* on the verb at the end of derivation, or post-syntactically.

(9) Alternative Realization (AR). Any syntactic feature F canonically associated in UG with category B can be alternatively realized in a closed class grammatical morpheme under X^0, provided X^0 is the lexical head of a sister of any projection B^j. (Emonds 2000: 125)

According to AR, specific categories are canonically associated with certain grammatical features. Such a feature can be Spelled Out on the head of a sister of a projection of the category in question. Another example of AR is the realization of particular instances of morphological case. Case features are argued to be 'feature copies on DPs of their case-assigning sisters. . . . In particular, ACC, NOM, DAT and GEN alternatively realize V, I, P and D respectively' (Emonds 2000:202). As the alternative realization of features, morphological case is inserted in PF, after syntax. The differences between types of morphemes will be explored in more depth in Chapter 3. To summarize the syntactic framework outlined here, the model is schematized in Figure 1 (overleaf).

In this Figure, derivation is represented by the horizontal arrows and lexical insertion by the vertical arrows. Starting from the lefthand side of the model, there is insertion of open class lexical items from the Dictionary. Secondly, principles of syntax, such as the projection of structure and head final/initial positioning, apply. At this point there are two options. The surface structure configuration as an output of the syntax can be spelled out to and 'move on' to the semantic (LF) and phonological

(PF) components; alternatively, there may be cause for additional lexical insertion of 'functional' or 'grammatical' items from the Syntacticon before the syntactic derivation is spelled out.[8] Once the syntactic derivation is complete, the string is spelled out for interpretation at LF; and lastly, any Syntacticon elements needed to satisfy PF restrictions are inserted.



[1] Deep lexical insertion (pre-derivational)
[2] Mid-level lexical insertion (in the derivation)
[3] PF lexical insertion (post-derivational)

Figure 1: Derivational model of Language

One noteworthy aspect of this theory is the lack of distinction between bound and free morphemes which do not differ in terms of syntactic status, but instead only phonologically in terms of whether they require a host or not. Whether a morpheme is bound or free is determined to some extent by how a particular language organizes itself, giving rise to crosslinguistic variation. In terms of syntax and lexical insertion, bound and free morphemes are equally capable of containing the same range of properties.

The basic derivational options are all made possible by UG, but languages may differ in terms of the strategies they employ for any given derivation: a syntactically driven derivational strategy employs only principles of syntax while a morphologically driven strategy includes additional functional morphology in the syntactic derivation. Within a language, certain phenomena may rely exclusively on

[8] Throughout the thesis I refer to Syntacticon items by the more traditional labels, *grammatical* or *functional*, as well.

syntactic derivation while others will make use of the morphological strategy. This difference accounts for some of the variation that exists crosslinguistically and may be captured by the idea of parameterization, akin, perhaps to Baker's idea of a polysynthesis parameter.

The derivational model outlined here will be explored in more depth in the body of this thesis through the investigation of a particular syntactic construction, the resultative construction. I show that unlike English, Korean employs a morphologically driven derivation for resultative formation. I also present an empirical study of the second language acquisition of the resultative construction which explores questions of first language transfer when functional morphology is implicated, as well as questions of second language development. It is first necessary, however, to present the basic facts of the resultative construction.

1.2 The resultative construction

The resultative construction comprises an agent, a verb, an object and a secondary predicate. The object is an NP which undergoes some change of state (henceforth the change-of-state NP) and the secondary predicate is an AP, NP or PP (henceforth the result phrase). Thus, for example, the painting of the door in (10a) results in the door becoming red; and the sneakers become ragged in (11a) as a consequence of running.

(10) a. Sadie painted the door red.
b. Sadie mashed the peas mushy.
c. Sadie shot the thief dead.

(11) a. Ben ran his sneakers ragged.
b. Ben laughed himself silly.
c. Ben walked his feet sore.

(12a) is an example of a resultative with a PP secondary predicate while (12b) exemplifies a nominal NP secondary predicate.

(12) a. She pounded the dough [into a pancake].
b. She painted the barn [a weird shade of red].
(Carrier & Randall 1992: 183, (24b), (23a))

It has been noted that resultatives like (10) and (11) differ in terms of the transitivity of their respective verbs when they occur in non-resultative constructions.

Accordingly, those in (10) are referred to as 'transitive resultatives' and contrast with 'intransitive resultatives' like those in (11) (Carrier and Randall 1992).

The resultative construction described here can be contrasted with another construction which superficially looks the same. The so-called depictive has the same [V NP AP] surface ordering but a different interpretation: the second postverbal constituent describes the state of the object at the time of the action, not the resultant state of the postverbal NP after the conclusion of the action. In (13), for instance, the potatoes are raw when the frying occurs, not raw as a result of frying.

(13) Jones fried the potatoes raw. (Rapoport 1999: 653 (2a))

This object depictive contrasts with yet another construction, the subject depictive in which the postverbal AP describes the subject at the time of the action.

(14) a. Amy scrubbed the bathtub naked.
b. Jones fried the potatoes stoned.

The differences in interpretation between the resultative, the object depictive and the subject depictive all suggest a difference in syntactic structure. The exact syntactic analysis assigned to these structures will be discussed in Chapter 2. For now, let us just accept that the syntax of English projects different structure to form a resultative than it does to form each of the depictive structures. According to the proposed derivational model, the open class lexical items are inserted at deep structure. Then syntactic structure is projected. Finally, the surface structure output from the syntactic component interfaces with LF, giving rise to the desired interpretation. Note that some strings can give rise to ambiguous interpretations.

(15) Jones slapped Smith sober. (Rapoport 1999: 654 (3d), (4d))
= Jones slapped Smith until Smith became sober. (resultative)
= Jones was sober when he slapped Smith. (subject depictive)
≠ Jones slapped Smith when Smith was sober. (object depictive)

The syntax of English thus allows two structures for the sentence in (15), each giving rise to a different interpretation.

The derivation of the resultative (and the depictive) in English illustrates a syntactically driven strategy, one of the options provided by UG. This strategy can be contrasted with the morphologically driven strategy for deriving resultatives

employed by Korean to form the resultative.[9]

(16) Ku-nun soy-lul pyongpyongha-**key** chy-ess-ta.
he-TOP metal-ACC flat-**RES** pound-PST-DECL
'He pounded the metal flat.' (Kim 1993: 471 (1))

cf. Ku-nun soy-lul chy-ess-ta.
he-TOP metal-ACC pound-PST-DECL
'He pounded the metal.'

(17) Ku-nun ku sonswuken-i ces-**key** wul-ess-ta
he-TOP that handkerchief-NOM soggy-**RES** cry-PST-DECL
'He cried the handkerchief soggy.' (Kim 1993: 472 (5))

cf. *Ku-nun ku sonswuken-i/-ul wul-ess-ta.
he-TOP that handkerchief-NOM/-ACC cry-PST-DECL
'He cried the handkerchief.'

The resultative in Korean is like its English counterpart in terms of interpretation. It is also equivalent in that it occurs with verbs that are normally transitive (16) as well as those that are normally intransitive (17). But the Korean resultative differs in that it necessarily includes a functional morpheme, *-key*. Thus, by the proposed derivational model, the open class lexical items are inserted at deep structure and syntax is projected abiding by general syntactic principles. But then there is an added step that is particular to Korean. The projected syntax requires the insertion of a functional morpheme, *-key*, from the Syntacticon. As will be shown in Chapter 3, the Korean resultative morpheme is required for syntactic derivation. Thus the resultative in Korean can be seen as 'morphologically driven'.

In addition to the syntactic constraints on resultative formation, there appear to be constraints on open class Dictionary items in English resultative formation.

(18) a. *The dog smelled the flower bed bare. (Levin 1993: 100 (376a))
b. *Willa arrived breathless. (Levin 1993: 100 (378a))
Intended meaning: Arriving made Willa breathless.
c. *Sharon brought Willa breathless. (Levin 1993: 101 (378b))
d. *Jane dismissed her student offended.
e. *Jane invited her mother-in-law flattered.
f. *Jane inspired Todd eager.
g. *Amy kicked Paul angry.

[9] The Korean resultative *-key* has received a wide variety of glosses in the literature. Throughout this thesis *-key* will be glossed RES for resultative, regardless of the gloss given by the cited source, unless otherwise noted.

h. *Amy nudged Paul annoyed.
i. *Amy scrubbed the bathtub sparkling.

The restrictions on resultative formation will be explored in the next chapter in order to illustrate the different ways in which language constraints apply. As there appear to be restrictions on the particular Dictionary items that can be inserted pre-derivationally in resultative formation, I will argue that a resultative is constrained in terms of Feature selection before any syntactic principles even apply. Secondly, the syntax implicated in resultative formation depends on the projection of syntactic structure to house a complex secondary predicate. And thirdly, resultative formation in a language like Korean includes an overt resultative morpheme, indicating that a functional element in the Syntacticon is also implicated in resultative formation. In short, the Feature content of particular lexical items, the inventory of Syntacticon items, and the level of insertion are all relevant to resultative formation and are subject to language-specific differences as well.

To summarize this section, the resultative construction can be identified crosslinguistically by its syntactic structure and the particular interpretation that is associated with that structure. There are syntactic and lexical semantic constraints on the resultative as well as differences crosslinguistically. Resultative formation in English and Korean instantiates two of the strategies that languages can employ: syntactically driven derivation and morphologically driven derivation, respectively.[10] This difference proves interesting when one considers questions of second language acquisition. In the next section I will discuss questions of first language transfer and second language acquisition, again using the resultative construction for illustration.

1.3 Second language acquisition

By the derivational model proposed above, the resultative construction is subject to different types of linguistic constraints: pre-derivational lexical constraints, syntactic constraints and, for Korean, morphological constraints. The first language learner of English must acquire the Features associated with the lexical items as well as the subcategorization frames of the open class items to be inserted to form a resultative. Additionally, the native English speaker must acquire the general syntactic principles of English, such as the headedness of VP. The first language learner of

[10] I leave open the possibility that there could be other strategies of which I am not aware.

Korean, on the other hand, must acquire these linguistic aspects plus the additional morphological requirement for derivation of the resultative. This morphological requirement involves acquiring the Features of the resultative morpheme as well as the proper level of lexical insertion for the morpheme.

In this project I ask what a native speaker of a language like Korean faces when acquiring the resultative in a second language, particularly when that language does not employ the same strategies in resultative formation. The second language in question is English. This L2 acquisition project is based on the Full Transfer/Full Access model of Schwartz and Sprouse (1994, 1996), which posits the initial state of L2 acquisition to be the grammar of the L1. Thus, the initial state of the Korean learner of English is the grammar of Korean, unlike the native English learner who begins with the unspecified options provided by UG in its entirety. Therefore, when first faced with the task of parsing an English resultative, the Interlanguage of the native speaker already includes the lexical, syntactic and morphological constraints required for resultative formation in Korean. The assumption is that the learner will use the lexical entries of L1 Dictionary items if there are analogous forms that can give rise to a possible parse. If the L1-based lexicon is insufficient, however, the input will cause the restructuring of the lexical entries of individual Dictionary items, choosing from the inventory of Features provided by UG.

As for the syntax, it is assumed that input is sufficient to allow resetting of basic syntactic parameters, like headedness. Universal principles, like X'-theory, will be in place and not require any change. The question, however, is what happens to the L1-based morphological requirement associated with the Korean resultative? By the model proposed here, the syntactic derivation of the English resultative and the derivation of the Korean resultative are parallel through the first two steps: pre-syntactic lexical insertion and projection of syntactic structure. Based on the Full Transfer/Full Access model, however, the L1-based IL of Korean learners of English will also contain the next step requiring the insertion of a Syntacticon item for derivation of the resultative to proceed to LF. This presents the problem of unlearning in L2 acquisition. The question is whether this kind of unlearning can occur.

I ask whether the target language input can force the unlearning of a 'morphological requirement' like the one associated with the Korean resultative, and if so whether the English interlanguage of Korean speakers undergoes UG-constrained restructuring. Or, will Korean learners of English be unable to restructure

their grammar and therefore lack the modular linguistic knowledge needed to parse an English resultative.

If it is the case that a Korean learner is not able to acquire the necessary linguistic knowledge for resultative formation in English, the next question is whether or not the resultative could ever be learned. Accordingly, I explore whether a deficiency in acquired linguistic knowledge can be compensated via general cognitive, extra-linguistic reasoning such that the resultative in English can be learned. Ultimately, the question is whether L1-L2 'morphological mismatches' like the one associated with English-Korean resultatives illustrate an instance in which the existing L1 grammar interferes with the acquisition process, thereby leading to lack of target-like attainment in L2 acquisition.

As generative linguistics has not had much to say about general cognitive mechanisms, a brief word may be in order here. The appeal to general cognitive mechanisms has been fairly common in the field of second language acquisition. Many researchers assume that the difference in cognitive processing between modular processing and general processing is the fundamental difference between native and nonnative speakers of a language. (See, for instance, the Fundamental Difference Hypothesis of Bley-Vroman, 1990.) By looking at the developmental patterns of adult Korean learners of English, I hope to contribute to the debate regarding IL development and epistemological differences in L2 language knowledge.

Going beyond the question of L2 acquisition, however, I would like to point out that the use of general cognitive mechanisms in language processing is not limited to nonnative speakers, but is implicated among native speakers as well. A construction like the resultative provides an opportunity to illustrate this. In this project I will explore the notion of 'construction', defining it as a syntactically derived string that instantiates a fixed structural pattern and is associated with a regular degree of interpretation. Though a construction is generated based on modular linguistic principles, it is also easily identified metalinguistically precisely because it conforms to a regular pattern that is readily recognizable. So, for instance, the resultative has a fixed [V NP AP] structure and gives rise to the interpretation that the noun changes state because of the action of the verb. The ability to identify this kind of a pattern gives a construction like the resultative non-modular status, implicating the general cognitive component in addition to the modular processes required for the derivation of the construction.

I contend that native speakers of a language make use of constructions because these familiar patterns facilitate or ease the task of communication. Moreover, teachers of a language can draw from their knowledge of the use of language from within their general cognitive store to teach second language learners particular familiar instantiations of the structure that the grammar naturally produces. It is often claimed that language teachers teach second language learners constructions. And second language learners, in turn, can learn to store these patterns/strings to facilitate communication in their second language.

It may be that L2 learners can also restructure their modular L2 knowledge, and thereby resort to 'constructions' much like the native speaker does. It is also possible, however, that the L2 learner is left having to rely on construction-building in cases where UG-constrained restructuring is somehow not possible. My intuition is that a morphological mismatch like the one claimed to exist between Korean and English in generating resultatives is one such case in which the L2 learner may not be able to restructure their grammar and must, instead, resort exclusively to extra-linguistic learning mechanisms. The notion of general cognitive constructions will be explored and developed in the next chapter of this thesis.

My interest in morphological mismatches in L2 acquisition grew out of earlier work in which Korean learners of English had difficulty with the English double object construction in a way that was dissimilar to Japanese learners (Whong-Barr 1999). The difference between the two groups is the grammatical difference whereby Korean, requires a functional morpheme for double object formation whereas Japanese disallows double object constructions. Other work in L2 acquisition also suggests effects in IL development when there are morphological differences between the native and target languages (Montrul 1997, Slabakova 1997, Juffs 1998, among others).

The experimental study reported in this thesis was designed to explore the developmental patterns of Koreans learning the English resultative. However, to provide a contrast, I needed a second group of subjects whose native language also includes the resultative, but without a requirement for a resultative morpheme. Mandarin Chinese has a morphologically unmarked resultative construction, and thus a group of L1 Chinese learners of English were tested alongside the L1 Korean group. The hypotheses for that study can be summarized as follows.

- Initial State Hypothesis: Korean, but not Chinese learners will initially disallow English resultatives because there is no analogous resultative morpheme in the target language input.
- Developmental Hypothesis: While the Chinese learners will acquire English resultatives much like native L1 English children do, Korean learners may lag behind in their development because of the L1-L2 morphological mismatch.
- End State Hypothesis: Eventually both Korean and Chinese learners will acquire the resultative in English.

The experimental study and its results make up the second half of this thesis. But to start with, in the next chapter I develop the derivational model of syntax presented briefly in this introductory chapter. The lexical restrictions associated with open class items that can be inserted in the English resultative will also be explored in that chapter. This will be supplemented with a discussion of the syntactic structure that a resultative instantiates, a structure that leads to the desired resultative interpretation and not another interpretation, like, for example, a depictive.

In Chapter 3 I explore issues of morphology as they relate to the English resultative and develop the notion of late lexical insertion, investigating the resultative in Korean. I show that the Korean resultative morpheme gives rise to an intransitive resultative when there is insertion in the syntax and a transitive resultative when insertion does not occur until after syntax, in PF. This discussion of resultative formation will help to clarify the hypotheses associated with the L2 study presented in the second half of the thesis. Chapter 4, however, provides a literature review of L2 studies relevant to questions of transfer of morphology; this forms the background for the experimental L2 study. The study itself will be presented in Chapter 5 and the results reanalyzed and further discussed in Chapter 6. The final chapter will bring together issues in acquisition and morphosyntax; and it will look ahead, exploring some of the questions raised in the thesis.

1.4 Conclusion

In sum, this thesis is based on a framework in which there are three levels in which constraints on syntactic derivation are said to apply: pre-syntactically with lexical selection, syntactically with universal principles and broad syntactic

parameters, and in the language-particular functional lexicon. All three types of constraints are assumed to be given by UG which specifies the limits of a natural language. The linguistic task for the learner of a Language (L), therefore, is to discern i) the lexical Features and selections restrictions on open class lexical items in L, ii) the instantiation of syntactic principles and parameters in L, and iii) the inventory of Syntacticon items in L, including the selection and insertion restrictions for each item.

With a fully developed grammar in place, the next question is the effect of the first language on the development of a second language. The L2 framework underpinning this work is the Full Transfer/Full Access model in which the whole of the native language transfers and subsequent Interlanguage development is constrained by UG.

Based on these two theoretical frameworks, I explore questions of functional morphology, both in terms of syntactic theory and L2 acquisition, following the intuitions that i) there are different kinds of morphology that have qualitatively different effects on the syntax and that ii) because of L1 transfer, when the native and target languages differ in terms of certain kinds of functional morphology, there will be effects in IL development. The exact nature of different types of functional morphology and their particular effects in L2 acquisition form the starting point of this investigation. These issues will be explored by investigating the resultative construction.

Chapter 2 Lexical Selection and Syntactic Projection of Structure

2.0 Introduction

In this chapter I develop the idea that there are two sets of principles, lexical and syntactic, that work in tandem to give rise to syntactic structures. In terms of the lexicon, I investigate the mechanism of subcategorization and develop the notion of Feature-based lexical entries. I ultimately argue that some verbs select complex complements via Feature specification. It is then up to the syntax to be able to project the structure necessary to satisfy the subcategorization of complex predicates. To explore this interaction between syntactically relevant cognitive Features and the generation of strings via syntactic derivation, I investigate the properties of the resultative because this construction resists any analysis that looks exclusively to syntactic mechanisms, on the one hand, or exclusively to lexical mechanisms, on the other. Instead, the framework introduced in Chapter 1 allows for a principled analysis whereby the properties of the resultative can be explained in terms of the interaction between the lexicon and general syntactic principles.

While questions of morphology and multi-level insertion are also relevant to resultative formation, the discussion in this chapter is limited to more general properties of syntax and the lexicon; and the discussion is limited to resultative formation in English as well. In the next chapter I will explore issues of morphology, looking again at the resultative in English, and proposing an analysis of the Korean resultative which relies crucially on a resultative morpheme. Let us begin, however, with questions of the lexicon and syntax.

In much of the existing literature, there seems to be a general assumption that English resultative formation is freely generable. But as noted in Chapter 1, there do seem to be some restrictions on resultative formation. Indeed, it is not difficult to give examples of semantically plausible resultatives that are not acceptable in English.

(1) a. * The thief strangled the man dead.
b. * Roger drank his girlfriend stupid.
c. * The maid swept the porch tidy.
d. * John drank himself oblivious.

Upon reflection it seems that sometimes resultatives are ill-formed because of

problems with particular components of the construction. Some unacceptable resultatives seem to point to restrictions on the verb (2a). Others seem to break down over choice of postverbal change-of-state NP (2b). Still others suggest the problem resides in the choice of result phrases (2c) and (2d).

(2) a. The thief shot / *strangled / *hit / *tortured the woman dead.
b. Roger drank himself / *his girlfriend / *Tom / *beer stupid.
c. The maid swept the porch clean / *tidy / *inviting / *presentable.
d. John drank himself to sleep / *oblivious / into oblivion / *asleep.

These examples suggest a lack of productivity in generating resultatives. In this chapter I argue for certain necessary conditions on resultative formation. Firstly and most generally, the resultative must conform to the syntactic structure of the language. Beyond the syntax, there are restrictions on the lexical items that can be included in the syntactic structure that gives rise to a resultative. There is a limit to the set of verbs that subcategorize for secondary predicates as well as restrictions on the nouns and adjectives that are selected in the complements.

In this thesis, like in most of the relevant literature, I frequently refer to *the resultative* as if it might be a syntactic unit with some grammatical status in the language. Many refer to a resultative *construction* when discussing strings like those in (2). Traditional grammars have long noted that some strings seem to have a regular syntactic structure and instantiate some regular element of meaning as well. Thus, I will begin this chapter asking what it means to call a resultative a 'construction', in attempt to address this descriptive observation. This discussion will take us outside of the domain of I-Language and into the realm of E-language, in the sense of Chomsky (1986). The aim, however, is to make explicit what the status of such a structure is in a Chomskyan approach. In doing so, I will maintain the position that even though the resultative can be seen as a distinct structure with particular properties that qualify it as one of a set of so-called constructions, it is, in fact, epiphenomenal, and thus extra-linguistic.

After clarifying the status of resultatives, I will proceed to questions of resultative formation. Though both lexical selection and syntactic structure are implicated in resultative formation, I will begin by discussing the syntactic structure of the resultative. Given the number of syntactic analyses that already exist, I do not endeavor to provide yet another one. Instead I will adopt the analysis of Bowers

(1993, 1997, 2001), arguing that the syntax projects an articulated small clause structure to house the secondary result predicate. This structure adheres to the general principles of X' syntax including a strict adherence to binary branching. Additionally, any discussion of the resultative must provide a structural explanation for the difference between the resultative and the superficially similar depictive. This difference will be traced to the structural difference between complements and adjuncts.

The discussion of the syntax of resultatives will also acknowledge some of the debates that permeate the literature. One point that has preoccupied linguists is that the postverbal NP in the resultative seems to be the subject of the secondary predicate, yet at the same time it also seems to function as the object of the main verb, raising the question of how to represent this dual function in the syntax. Adding further complication, in those resultatives that include verbs that are normally considered intransitive (see (2b)), some researchers insist that the postverbal NP cannot be considered the object of the main verb. Thus, the question of whether the change-of-state NP in an intransitive resultative is syntactically equivalent to the change-of-state NP of transitive resultatives is also considered.

In the exploration of these issues, Bowers' (1993, 1997, 2001) analysis emerges as the most coherent in terms of the syntax of resultatives; yet it too falls short when it comes to accounting for the lexical restrictions on resultatives like those in (1). (See, for instance, Hoekstra 1988, Ike-uchi 1990, Levin & Rappaport 1995, Rapoport 1999.) Despite the fact that these restrictions are largely lexical, the commonplace tendency to simply push the problem into the lexicon is no solution. Emonds' articulated theory of subcategorization and lexical selection provides the opportunity to formalize the restrictions on resultatives. Therefore discussion of the syntax of resultatives will be followed by a proposal that delimits resultatives using Feature-based selection. This proposal illuminates the lexical restrictions associated with resultatives and has larger theoretical significance as well. I will end this chapter by arguing that the Feature-based theory developed here allows for a unification of subcategorization and selection, and calls into question the need for positing theta roles and grammatical categories as primitives in the theory.

In sum, the aim of this chapter is to provide an analysis of resultative formation that takes both lexical selection and syntactic projection into account such that the curious properties of resultatives can be explained. But first we start outside

the realm of syntax proper in attempt to clarify the meaning of the frequently used term, *construction.*

2.1 The resultative: An identifiable pattern

Linguists from all traditions commonly refer to the resultative *construction.* This term, construction, has a checkered history in the field of linguistics. In the early days of generative linguistics (Chomsky 1957, 1965), certain rules of grammar, including transformations, were often considered construction-specific. With the development of a theory whereby all structures were seen to be derived from more general principles of grammar, however, the notion of construction became explicitly epiphenomenal. Nevertheless, the term itself is still frequently used to refer to syntactic strings that have an identifiably regular structure and are associated with a particular meaning or function. Yet there is no formal place in the theory for any such form-meaning pairings and most generativists would be uncomfortable with any suggestion that constructions are basic units of language. Despite this, it is commonplace to come across discussions of the passive construction, the double object construction, or the resultative construction.

Linguists in the functionalist tradition, by contrast, have assigned primary importance to so-called constructions. Indeed some have built whole theories based on the set of grammatical structures that instantiate a fixed syntactic structure and give rise to some degree of regular meaning. Fillmore (1988) is perhaps the best-known example of work within the Construction Grammar tradition, a tradition that has recently been bolstered especially by the work of Goldberg (1995). In this work, she characterizes constructions explicitly in terms of meaning when she writes 'constructions are associated directly with semantic structures which reflect scenes basic to human experience'; moreover constructions 'are taken to be the basic units of language' (Goldberg 1995). And when discussing the resultative in particular, she writes that the resultative construction 'exists independently of particular verbs that instantiate it' (1995: 189).

This is not the approach that I adopt. Instead, in this section I explore the observation that there are identifiable form-meaning associations, but maintain the generative position that they are not primitives in the language. To further clarify my position as distinct from the functionalist view, I will try to avoid the term construction and refer when necessary to such identifiable strings as *regular*

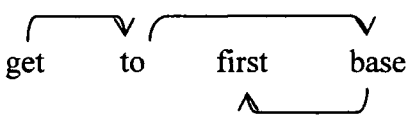
structural patterns. I will also suggest a distinction between word-based sequences, which I will refer to as collocations, and regular structural patterns, which are Feature-based sequences.

One linguist who has explored regular structural patterns that have specific associated interpretations is O'Grady (1998), who characterizes them as 'form-meaning-function complexes'. In his paper, O'Grady is primarily concerned with the nature of idioms. His aim is to explore these problematic phrases that are lexical in that they have a fixed meaning and are, presumably, listed in the lexicon, yet syntactic as well, in that they are full phrases that conform to the rules of syntax. O'Grady proposes that idioms abide by a grammatical principle which he calls the 'Continuity Constraint', whereby all the component parts of an idiom must form a chain of heads and dependencies. O'Grady explicitly assumes licensing to be a head-to-head relation such that subcategorization is selection for a head and not a phrase (1998: 283). This notion of licensing is relevant not just to complements, but to all dependents, including any arguments, modifiers and specifiers. An idiom can then be analyzed as instantiating a chain of heads.

(3) The string *x* . . . *y* . . . *z* . . . (order irrelevant) forms a chain iff *x* licenses *y* and *z*, or if *x* licenses *y* and *y* licenses *z*.
(O'Grady 1998: 294)

He illustrates this relationship using arrows. For example:

(4)



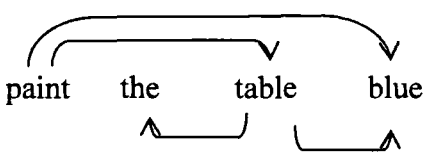
In (4) *get* licenses the preposition *to* which licenses the noun *base* which in turn licenses the modifier *first*. The definition of idiom, therefore, is a string made up of fixed lexical items which are all in a head-licensing relationship and which give rise to a specific meaning that is divorced from the literal meaning of the component parts.

Notably, O'Grady suggests that the Continuity Constraint might also be generalized to encompass regular structural patterns – though he uses the traditional label, construction. The difference is that while idioms are linked to specific lexical items, 'ordinary constructions can be characterized with reference either to syntactic categories or to large semantically circumscribed classes of lexical items' (1998: 290).

This is compatible with the analysis of resultatives that will be developed in this chapter; they will be shown to comprise semantically circumscribed classes of lexical items that share specific syntactic Features and are generated in a structure that conforms to general rules of syntax.

As O'Grady is primarily interested in idioms, his discussion of 'constructions' is limited and he does not specify their status in the grammar. Though he takes the standard position that idioms are listed in the lexicon, it is not clear that O'Grady would like to posit a list of regular structural patterns in the lexicon. So what is the status of a regular syntactic pattern? I suggest that they are merely identifiable patterns that can be given a label by a linguist (or a metalinguistically sophisticated speaker) because they conform to a specific syntactic structure and have, in a very general sense, a common element of meaning. The identifiable structure of a resultative, for example, is a verb followed by a noun and an adjectival secondary predicate.[1] Thus, the resultative can be seen as a chain of heads and dependencies as follows.[2]

(5)



Additionally, the resultative is associated with the distinct 'result' interpretation in which the object undergoes the change of state specified by the secondary predicate. In short, I adopt from O'Grady the notion of a "structure" such as a resultative as having the grammatical structure of a chain of heads and dependencies, and identified by the fixed relationship between form and meaning. Yet I contend that the identification of this regular pattern is extra-linguistic: the syntax and interpretation arise from grammatical rules, but the string itself has no grammatical status.

One advantage of O'Grady's proposal for the understanding of idioms is that it includes the set of idioms that allows free substitution of a particular component part. Some examples include:

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[1] This very descriptive characterization will be replaced with a more principled syntactic structure later in this chapter.

[2] O'Grady does not give any examples of constructions or discuss them except to assert that the double object construction follows the Continuity Constraint.

(6) a. throw the book at x
b. take advantage of x
c. to get x's goat

In each of these examples, the heads are connected by a head chain with the open slot as the lowest position in the chain. So, for instance, the preposition is a head and part of the idiom in (6a) and (6b). Similarly, in (6c) *get* licenses *goat* which licenses the possessive *-s*, which in turn licenses any (animate) NP. Extending this approach to resultatives might help to explain one of the restrictions noted at the beginning of the chapter. A number of resultatives are acceptable when they include a prepositional result phrase instead of an adjectival or nominal phrase.

(7) a. The demonstrators worked themselves *furious/into a fury.
b. John drank himself *oblivious/into oblivion.
c. The growing boy ate his family *poor/into poverty.
d. She pounded the dough *a pancake/into a pancake.
(Carrier & Randall 1992)

In these examples, the preposition *into* can be seen as the final head in the chain that comprises the resultative, leaving the object of the preposition open, thereby allowing for a wider range of result phrases.

One reason to believe that this proposal is heading in the right direction is that it is not limited to the resultative. Consider the observation that the prepositional alternate of the so-called dative alternation is not as restricted as the double object variant (Pinker 1989, a.o.). Perhaps the two variants of the alternation can be viewed as regular structural patterns with the following structure.

(8) a. double object pattern: V N N
b. *to*-dative pattern: V N to_
c. *for*-dative pattern: V N for_

That the preposition, but not the object of the preposition, is a part of the regular pattern in the *to*-dative (8b) and *for*-dative (8c) allows any pragmatically acceptable noun to be included.

Indeed there are other recognizable patterns which may be viewed as regular

structural patterns, as defined here. In addition to the double object (9a), *to*-dative (9b) and *for*-dative (9c), there are *make* causatives (9d), the so-called *way* construction (9e), and *with* locatives (9f).

(9) a. John gave Mary the book.
b. John gave the book to Mary
c. John bought the gift for Mary.
d. John made Mary eat the raw oysters.
e. John ate his way through Safeway.
f. John loaded the wagon with hay.

All of these examples can be identified by their fixed structural patterns as well as the particular aspects of meaning that are ascribed to them.[3]

Interestingly, it is commonplace to find idioms that occur in the form of the regular structural patterns associated with resultatives. The following resultatives give rise not only to the distinct 'result' interpretation, but to a meaning that goes beyond the literal meanings of the individual lexical items as well.

(10) a. We plan to **paint the town red** this weekend.
=have a good time
b. She **drove him crazy** with her questions.
=bothered him
c. Her thesis **worried her sick** in the last few months.
=troubled her
d. Ida **drank herself stupid** in just three hours.
=became very drunk

Notice that some of these idioms seem to have meanings that are further removed from their lexical combinations than others. The idiom in (10a), for instance, is more 'idiomatic' than that in (10d). I suggest that pure idioms may be distinct from regular structural patterns. Idioms cannot be decomposed to the literal meanings of each of its parts. Regular structural patterns, by contrast, can. It may be that particular word combinations become idioms that retain the syntactic structure of the regular structural pattern, but take on a figurative meaning dissociated from the component parts. Thus, an idiom like (10a) may be considered a lexicalized regular structural pattern that is listed in the lexicon.[4]

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[3] Though I will not pursue the particular syntactic analyses underlying these strings, the kind of proposal that I develop for resultatives in this thesis may also apply to them.
[4] See Nunberg, Sag, & Wasow (1994) for a discussion of idioms that assumes they are listed in the lexicon, but that some are more fixed and rigid than others.

To be clear, I do not want to claim that non-idiomatic regular structural patterns are listed in the lexicon. Instead, I suggest a distinction between idioms and regular structural patterns, both distinct from a third type of phrase as well: collocations. Collocations are words that are commonly used together, but do not have any extended meaning. Examples include *salt and pepper* and *pros and cons*. Collocations depend upon specific words. For example, even though the word *con* is synonymous with the word *drawback*, it is a violation of the collocation to say *pros and drawbacks*.[5]

This contrasts with regular structural patterns like the resultative. Though regular structural patterns also include words that sound natural together, there is a degree of flexibility in the actual choice of the component parts of the pattern.

(11) a. Carmine painted the walls yellow / polka-dotted / an ugly shade of red.
b. Andy swept the floor clean / clear of debris / spotless.
c. Marj washed the dishes / the muddy boots / the screaming baby clean.
d. Pamela sprayed the side of the house / the model airplane / the park bench blue.

I suggest that these examples include phrases that satisfy a degree of regular meaning, but are not limited to particular phrases. The degree of regular meaning is attributed to the Features of the arguments that are selected by verbs. Later in this chapter I will develop the idea of Feature-based selection in resultative formation. Any lexical items that satisfy the Features that are specified by particular verbs can occur in a resultative. A regular structural pattern, then, is a sequence of words that satisfies particular Features that occur in a fixed syntactic structure. This contrasts with collocations and idioms, both of which are limited to specific words.

In sum, any combination of words that satisfies the Features specified in selection can form regular structural patterns. That such patterns conform to a specific syntactic structure makes them easily identified by the language user. If this pattern is consciously identifiable, it may be subject to introspection, and, as such, speakers may be more aware of them than other less regular generated strings. This possibility will be revisited later in the thesis when we explore grammaticality judgments made by native English speakers, as well as second language learners' intuitions. I speculate that a higher level of awareness of certain structural patterns may result in a reliance

[5] The exact properties of each – regular structural patterns, idioms and collocations – requires further research that would take us beyond the scope of this work.

on particular lexical combinations over the free combination of lexical items.

Moreover, as particular lexical combinations become commonplace and regularly used by a community of speakers, specific lexical combinations may become more familiar than others to the point where the replacement of a particular lexical item in the familiar pattern sounds odd. For example, the phrase *to shoot someone dead* is extremely commonplace. When substituting a different verb, e.g. *to knife someone dead,* the phrase seems less natural. But it is not ungrammatical. Instead, for reasons of language use, or E Language, a community of speakers becomes familiar with certain resultative combinations such that other more unusual combinations are deemed odd or perhaps clever, depending on the context.[6] This may help to explain the large degree of variation that exists even among linguists in their discussion of resultatives.

This is not to say that any lexical combination is possible in resultative formation, however. As shown at the beginning of this chapter, there are ungrammatical resultatives. The remainder of this chapter investigates the exact constraints on resultative formation in terms of syntactic structure and lexical restrictions. To conclude this section, the value of O'Grady's approach is that 'grammatical theory does have something very important to say about the internal organization of the forms to which figurative meanings can be assigned' (1998: 189). Regular syntactic patterns can also be seen as structures with regular properties and an identifiable element of meaning. It is useful to be explicit about these regular structural patterns in the theory of grammar. Before discussing the Features that make up the resultative structural pattern, however, we will explore the syntactic rules underlying the resultative.

2.2 The syntactic structure of resultatives

The syntactic principles posited in Chapter 1 to be universal constraints on syntax are insufficient to capture the syntax underlying the resultative. The resultative is particularly curious because it conflates two predication relations. The term 'predication' refers to the relationship between a nominal phrase and a phrase that it

[6] This notion is akin to the claim by Pinker (1989) of violations of Narrow Range vs. Broad Range Rules, referred to as 'Haigspeak' after the U.S. Chief of Staff in the White House in the 1980s who was well known for his idiosyncratic use of language. It may be that Pinker's Narrow Range Rules can be equated with Feature-based lexical restrictions developed in this thesis, while the Broad Range Rules correspond to general rules of syntax.

combines with to form a proposition. To illustrate, simple main clauses embody a predication relationship.

(12) a. [Patty] [laughed]
b. [Patty] [read the notice posted on her front door]
c. [Patty] [is a very clever girl]

The resultative instantiates this kind of prediction plus an additional predicate; hence there is a so-called secondary predication relationship as well.

(13) a. Rex painted [the chair] [blue]
b. Rex cut [his hair] [short]
c. Rex drank [himself] [stupid]

The resultative secondary predication can be likened to other instances of embedded predication:

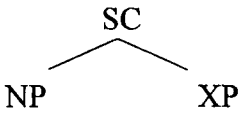
(14) a. Oscar saw [Patty] [laugh]
b. Oscar made [Patty] [read the notice posted on her front door]
c. Oscar considers [Patty] [a very clever girl]

The question is how to represent these embedded predication relationships. Semantically they seem analogous to simple main clause predication as they too embody a nominal 'subject' and a predicate. However, syntactically they do not instantiate full clauses. For this reason they are often referred to as 'small clauses.' Yet the exact status of so-called small clauses is far from clear.

2.2.1 The predication relation of small clauses

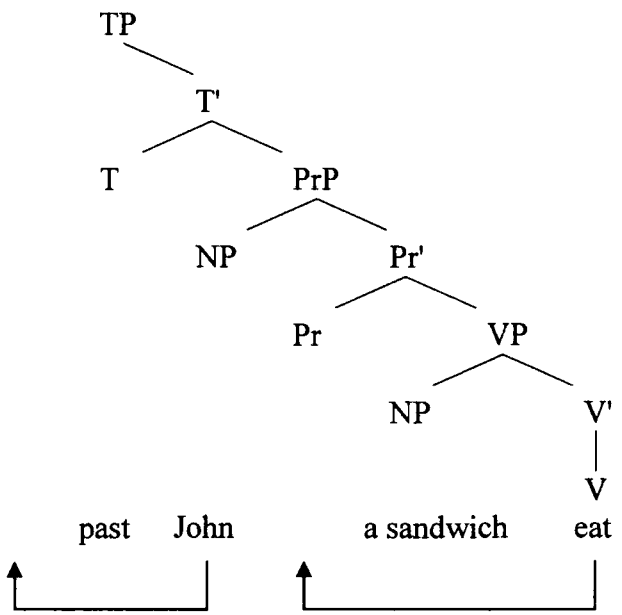
The term small clause was first used by Stowell (1981) to capture the equivalence between the predication relationship in sentences like (14) and main clause predication like that illustrated in (12). He needed to devise a term because there was no lexical or functional category in standard X' theory at that time that would suffice as a maximal projection to dominate the two constituents in question, nor one that would capture the predication property in question. Thus, proponents of a small clause approach have generally represented the small clause as an ad-hoc SC node.

(15)



This problem is the impetus for a proposal by Bowers in which predication is basic to natural language. Accordingly, he proposes that a functional Predication structure is a primitive in the syntax, encoding this basic relationship instead of assuming it to be a byproduct of syntax, as implicit in many accounts. For a main clause, according to this analysis, a Predication Phrase (PrP) is projected above VP, and verbs raise to Pr.[7] Additionally, subjects are generated in [Spec, PrP] and objects are generated in [Spec, VP] (Bowers 2001: 303 (9)).

(16)



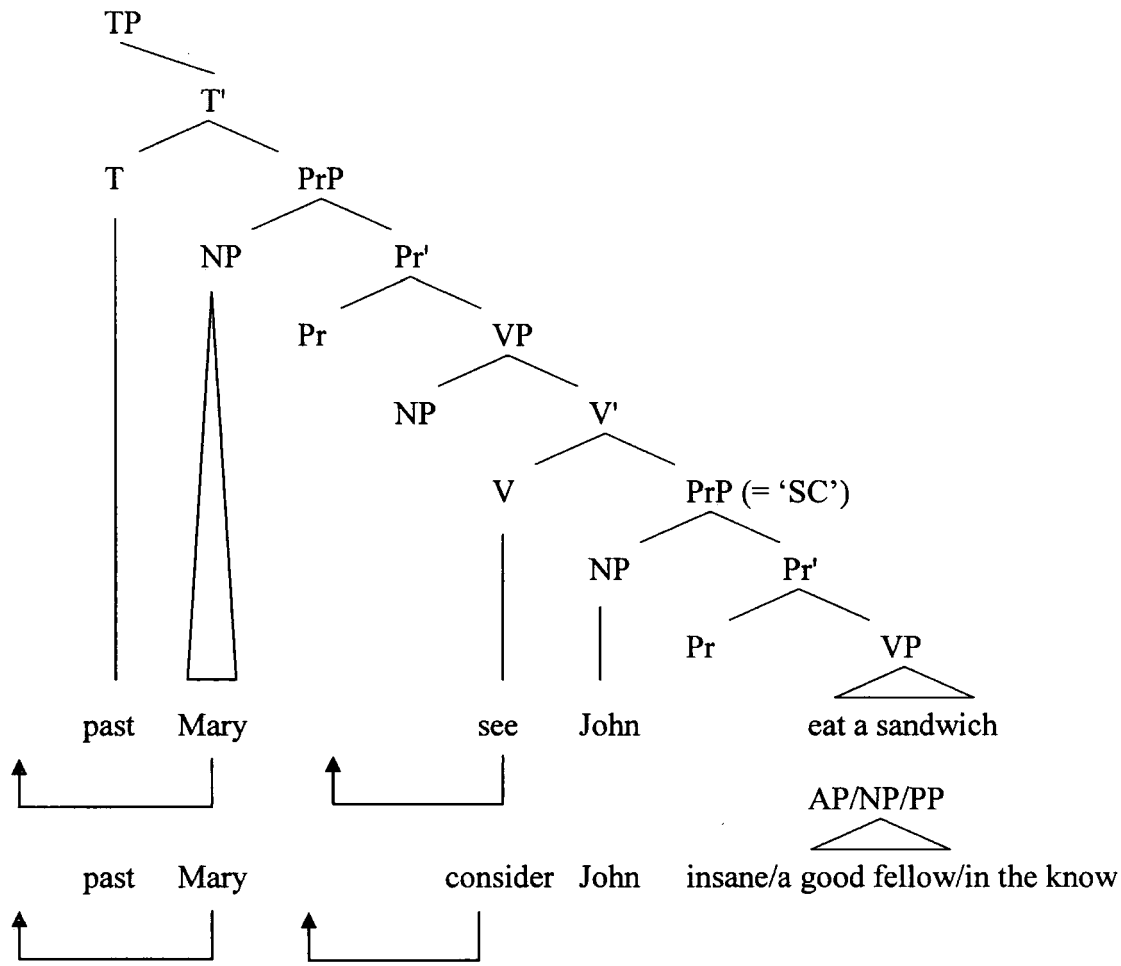
I will adopt this approach, thereby augmenting the claim of extended projections to include a Predicate Phrase as a projection of VP in addition to the projected IP. Thus, when a verb like *eat* is inserted in a derivation, the syntax automatically projects the structure shown in (16).[8]

This structure can also accommodate a sentence with a 'small clause,' with the

[7] For Bowers (2001) Pr is a bundle of features that are strong (in English) forcing V to move into it.
[8] The assumption of functional structure above VP, but below IP, has come to be generally accepted since the VP-shell proposal of Larson (1988), though there is disagreement over the exact label of this projection as well as some of its particular properties. See Chomsky (1998), Kratzer (1994, 1996), Marantz (1997), among others.

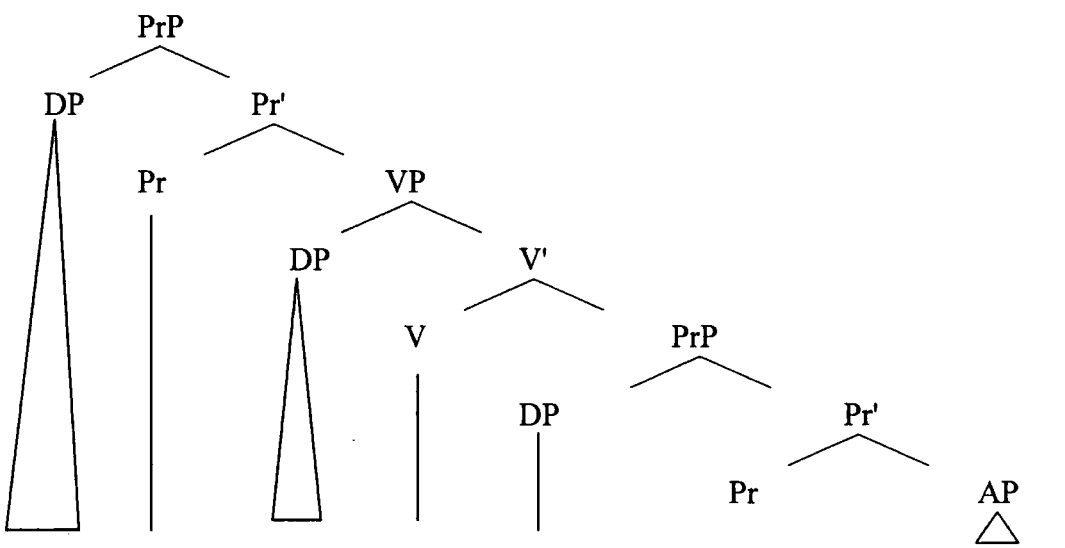
simple addition of a PrP complement to the main verb.

(17)



Using this same elaborated small clause structure, Bowers (1997) assigns the following analysis to resultatives.

(18)



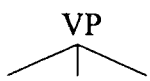
This structure has the advantage of encoding the semantic secondary predication relation syntactically and, as shown in (18), positing the same structure for transitive (18a) and intransitive (18b) resultatives. The difference between the two is whether the postverbal change-of-state NP involves raising (intransitives) or Control (transitives).

By proposing a structure that unifies the syntax and semantics of resultatives, Bowers directly counters the approach of Carrier and Randall (1992) (henceforth C&R). Because C&R (1992) has played such a central role in the discussion of the resultative in the literature, I will discuss their work in the following subsection.

2.2.2 Carrier and Randall (1992): A digression

C&R argue for a 'lack of isomorphism between semantic structure and D-structure on the one hand and between semantic structure and Argument Structure on the other' (1992: 225-6). This unparsimonious conclusion arises because they posit a ternary branching structure for resultatives.

(19)



V	NP	AP
water	the tulips	flat
run	the Nikes	threadbare

Their ternary structure does not reflect the predication relationship that exists between the postverbal noun and the result phrase. Yet they argue for ternary branching because they insist that both the change-of-state NP and the result phrase behave syntactically like arguments; and, crucially, they assume that arguments must be in a sisterhood relationship to the main verb.

C&R's main argument in favor of sisterhood status for a result phrase is that the long distance extraction of result phrases leads to weak subjacency violations characteristic of arguments and not the strong violations typical of adjuncts or subjects. Accordingly, extraction out of transitive (20a) and intransitive (20b) resultatives is shown to pattern like extraction of internal arguments (21), and not adjuncts (22).

(20) a. ? How flat do you wonder whether they hammered the metal?
b. ? How threadbare do you wonder whether they should run their sneakers?

(21) ? Which boys$_i$ do you wonder whether to punish t_i?

(22) * How$_i$ do you wonder whether to punish these boys t_i? (C&R 1992: 185)

Refutation of this claim comes from Bowers (1997) who points out that the whole 'small clause' can be argued to move, suggesting that the small clause and not just the result phrase is the sister of the verb. He draws on argumentation from (Huang 1993) that an anaphor in a fronted VP only takes as an antecedent an NP that would bind it if the anaphor had remained in situ, suggesting that the fronted VP contains a trace of the embedded subject.

(23) [Criticize himself$_{*i/j}$] John$_i$ thinks Bill$_j$ never will.

Bowers extends this argumentation to small clause AP predicates (24a) and resultatives (24b) showing that fronted wh-AP constituents can only be coreferential with the NP of which it is predicated.

(24) a. How proud of himself$_{*i/j}$ does John$_i$ consider Bill$_j$?
b. How close to each other$_{*i/j}$ did they$_i$ bend the [ends of the rods]$_j$?

Following Bowers, the whole Predication Phrase moves, along with its PRO subject, suggesting that it's the PrP that's the sister of V, and not just the result phrase. Thus there does not seem to be any strong syntactic evidence to support the claim that the result phrase is a structural sister of the verb. Bowers' proposal, therefore, remains the more attractive, especially since it syntactically encodes the predication relation found in resultatives, unifying it with the structure of 'small clauses' more generally.

A second issue which has generated much debate is the status of the postverbal change-of-state NP. There are two basic issues with regard to the change-of-state NP. Firstly, it seems to serve two grammatical functions, as object of the verb and subject of the secondary predicate. The problem has been how to represent this dual function in the syntax. The Predication Phrase proposal also solves this problem naturally, as indeed it is exactly this 'small clause' interpretation that inspired this claim.

Secondly, there is the question of whether the change-of-state NP in an intransitive resultative is equivalent to the change-of-state NP of transitive resultatives. The debate dates back to the early observation that only direct objects can

occur with result phrases (Simpson 1983). This was taken up by Levin and Hovav (1995) who turn the observation into a principle which they call the Direct Object Restriction (DOR). For them, it is the DOR that then explains the reflexive object found in a resultative formed with an intransitive verb (e.g. *drink **yourself** silly*). It is not clear, however, what the status of this DOR principle is exactly. The DOR seems to be no more than the original descriptive generalization.

Carrier and Randall (1992) give three arguments in support of the claim that the change-of-state NPs of transitive and intransitive resultatives are structurally different.[9] The first argument has to do with middle formation. The postverbal NP of the transitive resultative is said to act like an object because it can undergo middle formation (25a) while the postverbal NP of the intransitive resultative cannot (25b) (C&R 1991: 191).

(25) a. New seedlings water flat (easily).
b. * Competition Nikes run threadbare (easily).

But this claim is not true for all transitive resultatives.[10]

(26) a. * Porches sweep clean (easily).
b. * Powerless prisoners shoot dead (easily).

The supposed difference also appears in adjectival passive formation, which, again, is said to apply only to change-of-state NPs from transitive resultatives (C&R 1991: 195).[11]

(27) a. the stomped-flat grapes
b. * the danced-thin soles

Yet objects of other transitive resultatives are ruled out.

(28) a. * The painted-red tables
b. * The shot-dead prisoners

[9] In Whong-Barr (2002) I argue for a difference between transitive and intransitive resultatives in Korean (not English) in terms of morphology, but not syntactic structure. This analysis is the subject of the next chapter.

[10] In fact, I find the sentence in (25a) decidedly odd, a judgment confirmed by other native speakers whom I have consulted.

[11] Carrier and Randall (1992) accept the proposal of Levin and Rappaport (1986) that adjectival passive formation occurs only with direct internal arguments of verbal passives after demotion of the external argument.

The two postverbal NPs are also said to differ with regard to (process) nominal formation (C&R 1992: 201).

(29)a. The watering of tulips flat is a criminal offense in Holland.
b. * The drinking of oneself sick is commonplace in one's freshman year.

Thus only by this last claim are the change-of-state NPs seemingly different. Yet this difference may equally be related to the derivation of process nominals.[12] Furthermore, other data also suggest there is, in fact, no difference. Even Carrier and Randall note that both types of resultative give rise to weak subjacency violations when they undergo long distance extraction.

(30)a. ? Which metal do you wonder who hammered flat? (transitive)
b. ? Which sneakers do you wonder who ran threadbare? (intransitive)

And there is the issue of parallel interpretation. Whether it occurs in a transitive or intransitive resultative, the change-of-state NP is interpreted as an entity that has undergone some change of state. This is not mentioned in their paper.

In short, Carrier and Randall argue that the two postverbal NPs are equivalent by the test of long distance extraction, but differ in processes that specifically target internal arguments of verbs. This conflict leads them to the conclusion that 'although an argument of a verb must be its syntactic sister, a sister of a verb is not necessarily its argument' (1992: 174). In this way, there is no structural difference between the change-of-state NP of a transitive resultative and the one of the intransitive variant. Both resultatives instantiate a ternary branching structure. The difference is that the change-of-state NP in the intransitive is not selected by the verb. This account is problematic, however, both in terms of the questionable data, and also for the lack of isomorphism between syntactic structure and argument structure that it imposes. The analysis of resultatives that I adopt in this thesis acknowledges the seemingly curious properties of the resultative as highlighted by Carrier and Randall. Yet it is able to account for these challenges while appealing to independently motivated principles of syntax.

[12] The question of derivational word formation is explored further in Chapter 3.

2.2.3 Resultatives: A binary branching predicate structure

By adopting Emonds' general model of syntax and incorporating Bowers' proposal of predicate structure, we are able to address some of the problems discussed by Carrier and Randall. The analysis that I develop in this chapter posits the basis of resultative formation to be complement selection. The putative problem that a selected argument is a sister of the selecting head has already been argued to be unproblematic in a framework whereby selection for a lexical head and the projection of syntactic structure are separate mechanisms. At the level of selection, therefore, a sisterhood relationship between the verb and the change-of-state argument is maintained. The subsequent projection of structure is in a sense irrelevant to this relationship. In this approach there is an inherent division of labor between pre-derivational lexical selection and the combination of the selected lexical items in the syntax via the projection of structure.

From this general approach, I look to Bowers' projection of predicate structure to account for other syntactic properties of the resultative. Bowers is able to maintain equivalent structure for both transitive and intransitive resultatives without weakening the relationship between argument structure and syntactic structure. Positing additional structure (the Predicate Phrase) as a projection of VPs generally, Bowers is also able to account for the difference between the transitive and intransitive resultatives; as shown in (18), the transitive resultative is a Control structure while the intransitive instantiates raising.

In the transitive structure, the object is generated in the same object position [Spec VP] as all transitive objects (Bowers 2001). The projection of an added PrP housing the result phrase requires a subject. PRO in its subject position is said to be controlled by the closest c-commanding NP, the NP in [Spec VP]. This contrasts with intransitives in which there is no object generation in [Spec VP]. But with the addition of a PrP, the required subject is generated in subject position [Spec Pr]. However, an NP in this position cannot get case, thus requiring raising. Crucially, the subject-predicate relationship is maintained in both types of resultative and in this way the change-of-state NPs (in both types of resultative) receive the interpretation as subjects of their respective secondary predicates. This dual function, overlooked by Carrier and Randall, is basic to Bowers' predication analysis.

Adopting Bowers' proposal also allows us to maintain the assumption that all

syntactic structure is binary. I take the generally accepted position that binary branching is a universal property of the syntactic component,[13] a position that is implicit in Bowers' proposal for a Predicate Phrase as a projection of VP. Through the projection of PrP independently of IP, we are able to account for 'small clause' structures. It is this structure that is projected in resultative formation. One strength of Bowers' analysis noted above is that it includes a parallelism between transitive and intransitive resultatives in terms of syntactic structure and interpretation. A second strength of this proposal is that it allows for a structural explanation of the difference in interpretation between the resultative and the seemingly similar depictive.

2.2.4 The interpretation of resultatives: Complement and adjuncts

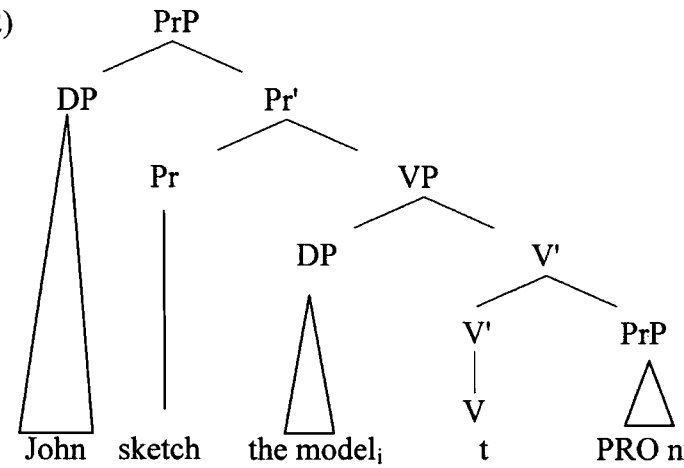
As shown in Chapter 1, the resultative interpretation contrasts with the interpretation of the superficially similar object depictive. If the resultative and the depictive can be shown to have different structure, it would no longer be surprising that they give rise to different interpretations. Recall that the depictive describes the state of the object at the time of the action and not any new state that comes about because of the action.[14]

(31) John sketched the model nude.
= the model was nude when John sketched it
≠ the model became nude as a result of the sketching

In his analysis, Bowers (2001) is also able to account for this difference within his PrP structure. He claims that the depictive also instantiates a predication relation, but points out that this subject-predicate relation is copular (e.g. the model is nude in (31)) and not one a change-of-state relation (i.e. the model does not become nude in (31)). To account for this difference, Bowers appeals to the traditional distinction between adjuncts and complements, positing an object depictive phrase to occur in a V'-adjoined Predicate Phrase within VP, and not as a sister of V as assumed for resultative predicates.

[13] On this point I diverge from Emonds, as he allows flat structures.
[14] It is also possible to get a subject depictive reading. This will be discussed shortly.

(32)



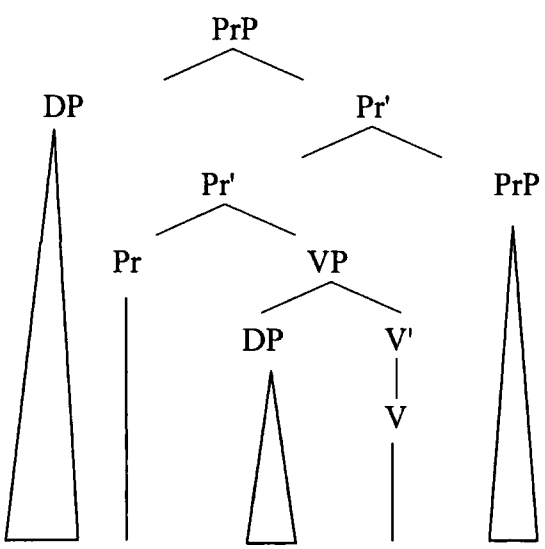
(Bowers 2001: 327 (78))

As can be clearly seen in this structure, the nearest c-commanding NP to the predicate *nude* is *the model*; accordingly, the adjective modifies this object, giving rise to the depictive interpretation. This simple proposal is akin to other kinds of optional modification, such as an adverbial (33a), prepositional (33b) or clausal adjunction (33c).

(33) a. Sandy did her work [$_{A'}$ happily].
b. Sandy did her work [$_{P'}$ with a smile on her face].
c. Sandy did her work [$_{C'}$ while she contemplated her love life].

Moreover, Bowers, in parallel fashion, can also account for *subject* depictives in which the predicate adjective modifies the subject of the sentence. He proposes that this is also an instance of adjunction, but adjunction within the higher PrP, not the VP. In this way it's the subject that's the nearest c-commanding NP.

(34)



(Bowers 2001: 327 (79))

Accordingly, adjunction leads to adjectival modification in the expected way.

The modifying result predicate, on the other hand, is a structural sister of the verb (see (18)). This analysis counters claims of Roberts (1988) that subject-predicated APs must be inside VP while the object depictive DP and resultative DP are outside VP. Roberts appeals to VP Fronting, tough movement and pseudoclefting to show that the three types of structures are the same in that they all undergo VP movement. Roberts' data is unproblematic, however, if one extends movement to include the whole of the larger PrP containing the VP, and not just the VP. As the APs in all three structures are within PrP, they would all be expected to undergo the same types of movement.

While Bowers' difference in structural position explains the difference between the depictive and resultative interpretation, it does not explain the distinctive *resultative* interpretation. The PrP structure was proposed in order to capture predication relations. And in differentiating between the resultative and the depictive, he uses the same PrP projection to account for the copular predication relation and the change-of-state predication relation. Yet there is nothing in the actual structure that could lead to the specific difference between the copular and change-of-state interpretation.

Additionally, there is another unresolved problem. Nothing in Bowers' proposal explains the fact that the generation of resultatives is far from productive. There are many nominals and predicates that are able to combine to form predication relationships, but not as *secondary* resultative predicates. This problem suggests that a further investigation into lexical restrictions is needed. In the next section, I will examine these restrictions within a Feature-based approach to lexical items and lexical selection. Firstly, however, I further explore the claim that a properly articulated lexicon interacts with general principles of syntax to give rise to specific linguistic phenomena.

2.3 The syntax - lexicon interface

In this section I develop an analysis in which the interpretation associated with resultatives is a by-product of other independently motivated mechanisms of grammar. Those mechanisms are lexical specification and selection as well as more general principles of syntax. The aim is to develop core areas which are necessary in any theory and to avoid any additional machinery that might require its own set of

stipulations. Thus I will build on Emonds' framework for lexical entries and discuss the interface between the lexicon and syntax in terms of how selection interacts with the projection of syntactic structure. The basis of the analysis I develop is twofold. Firstly, the lexical entries of specific verbs specify the Features of arguments. And secondly, these Features are projected in syntax in a complex predicate configuration. In this analysis it will be argued that the seemingly quirky restrictions on resultative formation can be attributed to the Feature selection of verbs. In the next subsection I will discuss the mechanisms of selection and projection in general terms. This is followed by a more specific discussion of the syntax-lexicon interface in terms of resultative formation.

2.3.1 Lexical selection and syntactic projection

In Chapter 1, I outlined the Feature system proposed by Emonds. Recall that open class Dictionary items instantiate F Features in addition to their idiosyncratic *f* features. Cognitive F Features differ from semantic *f* features in that only the former are grammatical in the sense that they are implicated in syntactic processes. Of particular relevance to this discussion is the way in which lexical items specify selection restrictions. Like traditional notions of subcategorization, the lexical entries of particular words specify selected complements. Unlike traditional subcategorization, however, this selection is extended to specific Features. In this way selection determines which lexemes can and cannot be inserted into the syntactic component as the first step in derivation.[15]

The lexical entry for *glance*, given before, is repeated here.[16]

(35) glance, V, *f*, <P, [SPACE], [PATH]>

Recall that this model eliminates redundancy by positing general principles in the syntactic component where possible. When the verb *glance* is inserted for derivation, it automatically selects a head which instantiates the Features specified in its lexical entry. And this head will be projected in the syntax as a preposition in a prepositional

[15] At this point, I am using the terms 'selection' and 'subcategorization' interchangeably. In the final section of this chapter, I will address the two more explicitly, arguing that subcategorization is selection at the level of the lexicon.

[16] Presumably, external subjects are also specified in the lexical entries of verbs. However, the question of external arguments will not be explored in this thesis.

phrase.

In this framework, there is no reason why a selected head cannot be specified to be projected as any of the categories given by UG. Thus, while *glance* selects a prepositional complement, a verb like *hug* selects a noun. Moreover, some verbs may specify a range of possible complements. Consider the following.

(36) a. Milton ate **Ø / [three hamburgers]**.
b. Milton suggested **[$_{DP}$ a plan of action] / [$_{CP}$ that we should leave]**.
c. Milton wanted **[$_{DP}$ quiche] / [$_{IP}$ to leave]**.
d. Milton rolled **[$_{DP}$ the ball] / [$_{DP}$ the ball] [$_{PP}$ into the room]**.

The range of complements associated with specific lexical items can be captured in lexical entries as follows.

(37) a. eat, V,*f*, <{Ø / N}>
b. suggest, V,*f*, <{N / C}>
c. want, V,*f*, <{N / V}>
d. roll, V,*f*, <{N / N P}>

The range of complement options for each verb given above is represented between curly brackets with a slash between each option. While the exact Feature content of each of these arguments requires investigation, the assumption is that the selected heads will instantiate those Features and be projected as a phrase of the type specified in the lexical entry.

Notice that the ability for a verb to optionally occur instransitively is captured by listing Ø as an option in the lexical entry, as illustrated above for the verb *eat* (37a). This same result could be achieved for optional arguments via the use of parentheses as illustrated here for the optionally transitive verb *eat*.

(38) eat, V,*f*, <(N)>

Though the actual notation is not important, the optional selection of arguments must somehow be encoded in lexical entries since it is commonplace for verbs to exhibit this kind of variability.

(39) a. Oscar walked **Ø / his dog** every Saturday morning before dawn.
b. Everyone knows that Oscar smokes **Ø / five packs a day**.
c. Every Friday night Oscar drinks **Ø / copious amounts of whiskey**.

A further aspect of this theory is that it allows selection for more than one

head. This is shown in the lexical entry of the verb *roll* (37d). This verb is able to select either a noun (40a) or a noun and a preposition (40b).

(40) a. Milton rolled **[$_{DP}$ the ball]**.
b. Milton rolled **[$_{DP}$ the ball] [$_{PP}$ into the room]**.
c. Milton rolled **[$_{PP}$ into the room]**.

Moreover, it may be that this verb also lists as an option a preposition only (40c). Whether so-called unaccusatives ought to be represented this way, however, is an open question. Be that as it may, the selection requirements of other obligatorily ditransitive verbs can be easily captured in this framework.

(41) a.	give, V, *f*, <N P>	Arnold gave the card to Gemma.
b.	send, V, *f*, <N P>	Arnold sent the bill to his mother.
c.	put, V, *f*, <N P>	Arnold put the flowers on the mantle.

Of course, these ditransitives can be expressed in an alternative double object form in English. This can be accounted for if the specification of arguments is expressed as Features and the projection of the selected heads is determined by the syntax. Later in this chapter I suggest that the specification of categories should be removed from lexical entries, claiming that selection of Features alone is sufficient. This suggestion solves the problem of how to specify the two options open to so-called dative shift verbs. For now, suffice it to say that as with simple transitive verbs, ditransitive verbs specify the selection of two arguments and the projection of structure is left to principles of syntax.

To summarize, this model posits subcategorization as a pre-derivational constraint on lexical insertion. The properties of selected heads are specified in the lexical entries of particular verbs. From this starting point, the projection of structure is determined by the principles of syntax. In the next subsection I will apply this theory to resultative formation by showing how lexical entries select arguments which are projected in a complex predicate structure.

2.3.2 Selection and projection of resultatives

My proposal is that resultative formation begins with merge of a verb that specifies two (Feature-based) heads. These two heads will project as a complex predicate of the structure proposed by Bowers because of (universal and language particular) principles of syntax. Take the following resultative as an example.

(42) Paddy painted the fireplace brown.

I propose the following as lexical entry for the verb *paint*.

(43) paint, V, *f*, <{N / N A}>

As shown in this entry, *paint* can select either a simple transitive object or a result predicate which will project as a Predicate Phrase, following Bowers. This projection of complex predicate structure is the only option for a grammar that adheres to binary branching if it is to accommodate such a verb - noun - adjective combination in the numeration such that it gives rise to this particular interpretation.[17] As with other types of selection, selection in resultative formation is for the categories and Features specified by particular verbs. Since the actual Features are not explored until the next subsection, we will limit the discussion in this section to the level of category specification.

My claim is that a verb selects a noun and an adjective in the Numeration. When these lexical items enter the derivation, they require the projection of structure to satisfy principles of syntax. Based on X'-theory, the noun will project an NP, which, by extended projections, will in turn project a DP structure, while the adjective will project an AP. Because of binary branching, however, these arguments require additional structure. Therefore, a Predicate Phrase (PrP) is projected to house the two lexical phrases. This selection of a complex argument is not so different from the selection of simple objects by transitive verbs or double objects by ditransitive verbs. As selected arguments, the lexical heads are specified in a sisterhood configuration at deep structure, before the projection of structure that gives rise to phrasal complements with associated functional structure.

Bowers also appeals to the mechanism of selection when he notes that the difference between transitive and intransitive resultatives 'is that some verbs (e.g. *sing*) select resultative raising complements, while others (e.g. *blush*) select resultative control complements' (1997).[18] I agree that selection is involved, but by my account the transitive/intransitive distinction is irrelevant in resultative formation. That some verbs can be expressed without any argument is independent of whether that verb also

[17] These same lexical items in numeration could also give rise to an attributive adjective interpretation (*Paddy painted the brown fireplace)* via a structure of adjunction within the noun phrase.
[18] The data given to illustrate the properties of the verb *blush* is: *John blushed (*himself / *Mary) scarlet / a deep shade of pink / to the roots of his hair* (Bowers 1997 (30)).

specifies a complex argument in its inventory of arguments. As noted above, selection is characterized by optionality and the possibility of a range of argument types. Moreover, the model of Language developed here would not allow for selection of a raising or control complement as this distinction is not a property of the lexicon, but rather would need to be accounted for within principles of syntax.

In short, some verbs specify complex result arguments while others don't. This possibility is illustrated in the following data in which a complex resultative predicate is shown to be one of a set of possible arguments specified by particular verbs.

(44) a. Al cooked **Ø / [$_{DP}$ the eggplant] / [$_{PrP}$ the bitter taste out of the eggplant].**
b. The dryer spun **[$_{DP}$ the jacket] / [$_{PrP}$ all the moisture out of the clothes].**
c. Carol ripped **[$_{DP}$ the sweater] / [$_{PrP}$ the price tag off the sweater].**
d. She washed **[$_{DP}$ the tablecloth] / [$_{PrP}$ the stains out of the tablecloth].**

As illustrated in (44) there are verbs that allow a simple noun complement *or* a complex result predicate. These verbs contrast with others which do not seem to select the latter option.

(45) a. He threw **[$_{DP}$ the pen] / * [$_{PrP}$ the pen (to) broken].**
b. The teacher erased **[$_{DP}$ the board] / * [$_{PrP}$ the board (to) clear].**
c. The driver crashed **[$_{DP}$ the car] / * [$_{PrP}$ the car destroyed/to destruction].**
d. She kissed **[$_{DP}$ him] / * [$_{PrP}$ him delirious/to delirium].**

Moreover, there are data that support the claim that it is the entire complex predicate that is selected – as a single argument, and not as a nominal object plus an additional adjectival predicate. Compare the following examples with their counterparts in (44) above.

(46) a. * Al cooked **the bitter taste.**
b. * The dryer spun **(all) the moisture.**
c. Carol ripped **the price tag.**
d. ?? She washed **the stains.**

As made clear by the ungrammaticality of (46a) the object of *cook* in (44a) is not the nominal phrase *the bitter taste*; it is the entire predicate, *the bitter taste out of the eggplant*. This is illustrated somewhat differently in the contrast between (46c) and (44c). In the simple transitive structure (46c), it is the price tag itself which is understood to have been ripped. This contrasts with the resultative structure (44c)

where the interpretation is that the tag remains intact despite the ripping. This difference in interpretation is explained by an approach in which the simple argument and the complex argument are seen as two distinct arguments instead of the secondary predicate being viewed as somehow added on to a direct object.

The lexical entries for the verbs *cook, spin, rip* and *wash*, then, include selection for two types of argument, either a simple noun object or a complex noun and result argument.

(47) a. cook, V, *f*, <{ Ø / N / N P}>
b. spin, V, *f*, <{N / N P}>
c. rip, V, *f*, <{N / N P}>
d. wash, V, *f*, <{N / N P}>

These lexical entries can only be seen as a first approximation, however. What still remains to be explained are i) the lexical restrictions on the component parts of the complex predicate and ii) the specific change-of-state interpretation. The approach to both of these problems is the same: the specification of Features. In the next subsection I will address the question of resultative interpretation, and return to the Feature specific underlying lexical restrictions in the subsequent section.

2.3.3 The [INCHOATIVE] Feature

As noted in our earlier discussion of predication, there are two predication relations, a copular relation and a change-of-state relation. The copular relation is found in simple sentences like (48) as well as complex 'small clause' sentences (49).

(48) a. She is tall.
b. She is a doctor

(49) a. We all consider [Edgar a fool].
b. When she got to the scene of the crime, she found [Ed unconscious].

In Emonds' theory, each category has a canonical Features associated with it. It seems reasonable to speculate that the canonical Feature for Predicate Phrases is the Feature associated with the copular relationship. In support of this suggestion, notice that in some languages there is no overt copula in simple copular sentences. The following example illustrates this in Arabic.

(50) a. hijja tabiib
she doctor
'She (is) a doctor.'

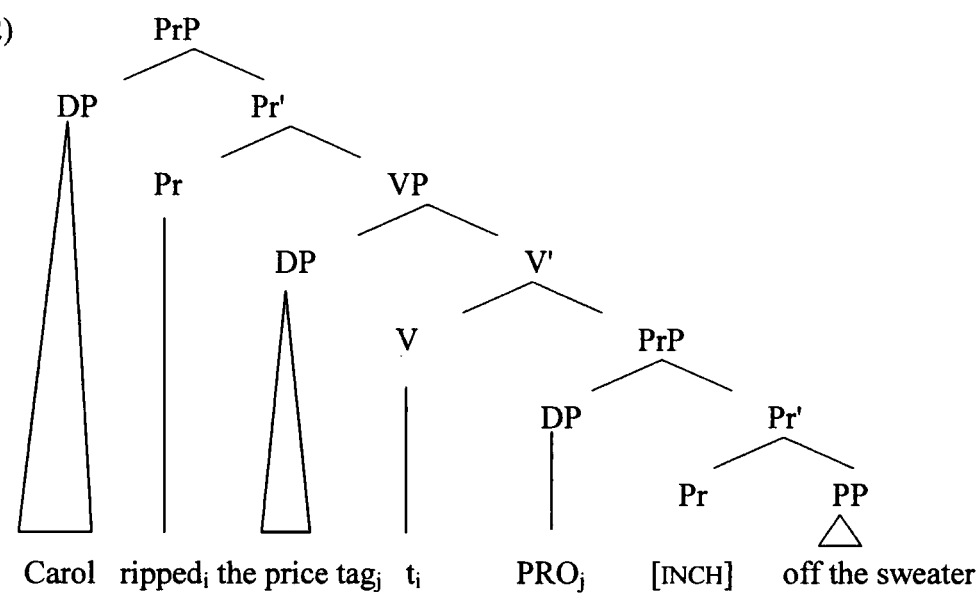
b. hijja tawilla
she tall
'She (is) tall.'

In the resultative, by contrast, the relation between subject and predicate indicates a change of state. Assuming this interpretation to be non-canonical for Predicate Phrases, I suggest that within selected resultative predicates there is a Feature that signals the change-of-state relationship. I propose a Feature, which I will call [INCH] for inchoative, to give rise to the interpretation that the selected noun becomes changed, a change expressed by the selected result phrase. Accordingly, the lexical entry given above for the verb *rip* is amended as follows.

(51) rip, V,*f*, <{N / N [INCH] P}>

Because the structure assumed for resultatives is that of a Predicate Phrase complement, the selected [INCH] Feature is asserted to be a Pr^0 element that projects PrP structure in the syntax. This Feature [INCH] is shown to head PrP in the tree shown overleaf.

(52)



Of course, this [INCH] Feature does not have an overt morpheme to instantiate it in English, but this is not necessarily problematic. Other predicate relations are also

lacking in overt expression. Both the copular small clause (49) and the Arabic simple present (50) are similarly lacking.

Further support for a null [INCH] morpheme in English comes from crosslinguistic data which shows that in some languages there is an overt functional morpheme associated with resultatives. Resultatives in Korean (53a), Japanese (53b) and Finnish (53c) for instance, include a functional morpheme that can be analyzed as the overt realization of an [INCH] Feature.[19,20]

(53)a. Ku-nun soy-lul pyengpyengha-**key** chy-ess-ta.
he-TOP metal-ACC flat-**INCH** pound-PST-DECL
'He pounded the metal flat.' (Kim 1993): 471 (1))

b. Kuruma-o aka-**ku** nutta
car-ACC red-**INCH** painted
'(I) painted the car red.' (Tsujimura 1990): 340 (17))

c. Marja maalasi talo-n ruskea-**ksi.**
Marja painted house-ACC brown-**INCH**
'Marja painted the house brown.' (Holmberg 2003, p.c.)

As will be discussed in Chapter 3, Kang (2001) argues that the *-key* morpheme in Korean heads Predicate Phrase, in the sense of Bowers. I maintain that the same holds for Japanese and Finnish as well.

In short, there is crosslinguistic support for the suggestion that an [INCH] Feature may be specified in complex resultative arguments. Moreover, there are other data that could be cited to support the existence of an [INCH] Feature in the inventory of possible grammars. It may, for instance, play some role in the so-called causative inchoative alternation.

(54) a. Mary broke the glasses. (Causative)
b. The glasses broke. (Inchoative)

Beyond just giving rise to an inchoative interpretation, the [INCH] Feature seems to be instantiated overtly in languages such as Spanish.[21]

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[19] As will be discussed in Chapter 3, the *-key* morpheme in Korean, as well as *-ku* in Japanese, have been considered adverbializers by traditional grammarians.
[20] The *-ksi* morpheme in Finnish, which I have glossed INCH, is considered translative case by traditional grammarians (Karlsson, 1999).
[21] The data are Montrul's, the analysis of *se* as an [INCH] morpheme is not.

(55) a. María rompió los vasos. (Causative)
Maria broke the glasses

b. Los vasos **se** rompieron. (Inchoative)
the glasses **INCH** broke
'The glasses broke.' (Montrul 1997:44)

Additionally, it may also be that [INCH] is a Feature of certain verbs in a language like Japanese, for instance, where it has been noted that a number of verbs have an 'inchoative' counterpart (Tsujimura 1990: 342 (20)).

(56)

Causative	Inchoative	
taosu	taoreru	'fall'
kesu	kieru	'turn off'
tukeru	tuku	'attach, turn on'
dasu	deru	'come out'
simeru	simaru	'close'
akeru	aku	'open'

While the exact role of a Feature [INCH] in various aspects of grammar will be left for further research, for the purposes of our discussion, suffice it to say that there appears to be some independent motivation for the existence of such a Feature.

In sum, my suggestion is that some verbs optionally select a complex predicate argument. The specification of [INCH] within the selected complex argument gives rise to a resultative interpretation distinguishing it from a Predicate Phrase that is copular in interpretation. Though this proposal may be able to explain the distinctive resultative interpretation, it does not explain the restrictions on the particular lexical items that can occur in the resultative. More precise characterizations of the selected noun and adjective complement will therefore be explored in the next section.

2.4 Features that restrict resultative formation

As noted at the beginning of this chapter, there seem to be restrictions on each element of the complex predicate in English resultative formation. This problem is glossed over by most analyses in the generative tradition, where interest is largely limited to discussions of syntactic structure (Bowers 1993, 1997, 2001; Carrier & Randall 1992; Hoekstra 1988, 1992; Ike-uchi 1990; Rapoport 1999; Rothstein 2001). Arguably, however, Emonds' proposal for a more articulated lexicon allows the possibility of capturing some of these restrictions formally instead of relegating them, unremarked, to the lexicon. To my knowledge, the only explicit attempt to delimit the

lexical restrictions on resultative formation is Wechsler (2001). In this section of the thesis I will present his work and then develop it, building on a Feature-based approach. I begin with a discussion of the verb in a resultative. This is followed by an attempt to determine the Feature specification of the two selected arguments. My aim is to further specify the subcategorization frames that give rise to the resultative, thereby contributing to the attempt to account for the full range of data associated with resultatives.

2.4.1 Features of verbs in resultatives

In Levin's (1993) comprehensive work on verb classes, she includes an entry on the resultative but is unable to delimit the range of verbs that occur in the resultative pattern, writing "a wide range of verbs is found in the resultative construction, so no specific class of verbs are identified here" (1993: 101). She does, however, exclude stative verbs and 'directed motion verbs,' e.g. *come, fall, go, return* as well as *bring* and *take*.[22]

Let us begin with the observation that the verb in a resultative cannot be a stative verb (Levin 1993).[23]

(57) a. * The dog **smelled** the flowerbed bare.
b. * The cage **contained** 100 dogs squashed.
c. * Roger **owed** the bank manager mad.
d. * (Only) John **possesses** the code secret.

Compare these illicit sentences with the far better ones below.

(58) a. The dog **ate** the flowerbed bare (in ten minutes flat).
b. The cage **squashed** 100 dogs flat.
c. Roger **drove** the bank manager mad.
d. John **made** the code secret.

The verbs in this second set differ from those in the first in that they are all activity verbs. Thus, another way to say that a verb in a resultative cannot be stative is to say that it is an activity verb. For Emonds (2000), the difference between these two broad classes of verbs is the specification of an [+ACTIVITY] Feature versus the absence of

[22] These two verbs are singled out in isolation and do not form a verb class as defined by Levin (1993).
[23] The first example (57a) is given by Levin (1993: 100 (376a)). The rest (57b - d) are my own.

such a Feature on verbs.[24] Moreover, the Feature [+ACTIVITY] is considered a canonical Feature for verbs. Adopting this approach, we can say that canonical verbs can select the arguments required to give rise to a resultative.

From the perspective of the approach developed in this thesis, it would be a misnomer to refer to this as a 'restriction,' since a resultative is simply a structural pattern that is generated following the lexical specification of particular verbs that are inserted from numeration. Instead, it is more accurate to say that the verbs that occur in the structure that gives rise to a resultative interpretation can be characterized as [+ACTIVITY] verbs. And, in fact, this characterization is unsurprising since it is only reasonable that some action is needed to cause a change in state.

However, Levin also notes that verbs of 'inherently directed motion' are disallowed (59), as are *bring* (60) and *take*.

(59) * Willa arrived breathless. (Levin 1993: 100 (378a))
Intended meaning: Arriving made Willa breathless.

(60) * Sharon brought Willa breathless. (Levin 1993: 101 (378b))
Intended meaning: Willa became breathless.

If the resultative were to be considered a primitive of some kind, as in the sense of construction grammar, one might assert that verbs that have some Feature like, say, [-DIRECTED MOTION] are disallowed in resultative formation. In the generative approach developed here, however, it is more reasonable to posit that verbs like *arrive, bring* and *take* simply do not select result predicates. In the next two subsections, I will argue that the constraints on resultatives are a product of Feature-based selection restrictions on verbs. As for the verbs themselves, any [+ACTIVITY] verb can, in principle, select two arguments that are expressed as a complex predicate and give rise to a resultative interpretation.

2.4.2 Features of adjectives in resultatives

Carrier and Randall acknowledge that there are restrictions on the result phrase in their discussion of resultatives when they argue that the result phrase is a structural sister of the verb. By the logic of their argumentation, the idiosyncratic selection of result phrases means that the result phrase must be a sister of the verb, thereby

[24] Alternatively, we could posit a negative [-ACTIVITY] Feature for stative verbs. This option is addressed in a later section of this chapter.

pointing to the aforementioned flat structure that they posit for resultatives. The data they give are as follows (Carrier and Randall 1992).

(61) a. She pounded the dough [$_{AP}$ flat as a pancake].
b. She painted the barn [$_{AP}$ red].
c. They ran their sneakers [$_{AP}$ ragged].

(62) a. She pounded the dough [$_{PP}$ into a pancake].
b. * She painted the barn [$_{PP}$ (in)to a weird shade of red].
c. They ran their sneakers [$_{PP}$ to tatters].

(63) a. * She pounded the dough [$_{NP}$ a pancake].
b. She painted the barn [$_{NP}$ a weird shade of red].
c. They ran their sneakers [$_{NP}$ a dingy shade of grey].

To explain these facts, Carrier and Randall cite Simpson (1983) who suggests that "whatever its category, the result XP must designate a state;" and they continue

> though it is not clear what the precise formulation of the state restriction should be, it does seem clear that one is needed, as c-selection does not go very far in determining the class of allowable result XP's.
> (Carrier & Randall 1992: 183-184)

Bowers (1997) takes issue with Carrier and Randall, arguing that these data do not suffice as an argument for selection in a sisterhood relationship because it is only relevant to constituent selection, not semantic selection. In support of Carrier and Randall, however, it is not difficult to think of examples that suggest that the result phrase is s-selected.

(64) a. Amy kicked Paul black and blue/*angry.
b. Amy nudged Paul awake/*annoyed.
c. Amy scrubbed the bathtub clean/*sparkling.
d. Amy shot Paul dead/*injured.

Yet, even if there is true s-selection, Bowers is still right to point out that this is not necessarily a good argument for syntactic sisterhood. It has already been shown that the framework in this thesis avoids this problem since selection is said to hold of lexical heads at deep structure, and further projection occurs in the syntax. Yet the general observation that there are restrictions on the result phrase is still a valid one and deserves discussion.

Wechsler's (2001) approach to this problem depends on a breakdown of adjectives into broad classes that he proposes as a basis for lexical restrictions on

result phrases. I will present that classification system, trying to incorporate it into the lexical framework developed in this thesis because it isn't entirely clear in his discussion how the distinctions he proposes are encoded in the grammar.

Wechsler's first distinction is between gradable and non-gradable adjectives. This kind of distinction can be expressed naturally in a Feature-based system as the Features [+/-GRADABLE]. He shows that [+GRADABLE] adjectives are compatible with degree modifiers and comparatives (65) while [-GRADABLE] adjectives (66) are not.

(65) [+GRADABLE] adjectives:
a. very/quite/extremely/a little bit angry/flat/expensive/red/tall
b. angrier, flatter, more expensive, redder, taller

(66) [-GRADABLE] adjectives:
a. ?? very/quite/extremely/a little bit dead/shut/sold/locked/literate
b. ?? more dead, more shut, more sold, more locked, more literate

Gradable adjectives are further classified by Wecshler as closed or open scale. A closed-scale adjective is argued to have an inherent standard, in contrast with an open-scale adjective which requires context. Thus, for example, a line that is considered straight is straight regardless of context, rendering *straight* a closed-scale adjective. In contrast, describing a person using an open-scale adjective such as *tall* only has meaning relative to the height of others. I suggest that this characteristic of gradable adjectives be represented by the Features [+/-INHERENT]. Wechsler's test for [+/-INHERENT] is the appropriateness of modifiers like *totally* or *completely*. He gives the following examples of [+INHERENT] (67) and [-INHERENT] (68) gradable adjectives.

(67) [+INHERENT], [GRADABLE] adjectives:
totally/completely full/empty/straight/dry

(68) [-INHERENT], [GRADABLE] adjectives:
?? totally/completely long/wide/short/cool

Wechsler proposes one more distinction. [+INHERENT] adjectives are further specified as having either a maximal or minimal endpoint. Nouns qualified with a maximal endpoint adjective cannot be said to be true statements unless the state is

fully or maximally true. For instance, a shirt is not clean unless it is one hundred percent clean. Contrast this with a shirt that qualifies as dirty (minimal endpoint) even if only the cuff is stained. This observation can be represented by the Feature [+/-MAXIMAL ENDPOINT]. Consider the following examples.

(69) [+MAXIMAL ENDPOINT], [INHERENT], [GRADABLE] adjectives:
straight, clean, dry, full, empty

(70) [-MAXIMAL ENDPOINT], [INHERENT], [GRADABLE] adjectives:
dirty, wet

Ideally, the existence of such a Feature can be determined by some diagnostic. I suggest that a diagnostic for the Feature [MAXIMAL ENDPOINT] might be its ability to occur with an adverbial phase like *just a little bit.*

(71) [+MAXIMAL ENDPOINT] adjectives:
?? just a little bit straight, clean, dry, full, empty

(72) [-MAXIMAL ENDPOINT] adjectives:
just a little bit dirty, wet

Wechsler's scheme for distinguishing between adjectives is illustrated in Figure 1.

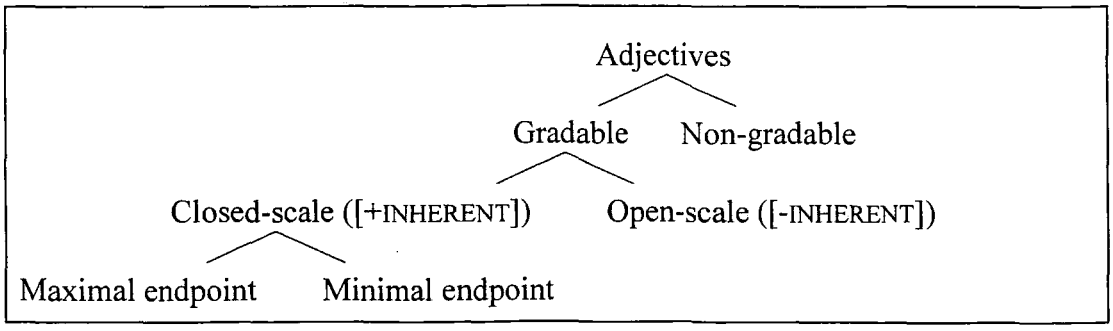


Figure 1: Wechsler's (2001) classification of adjectives

In his discussion of adjectives, Emonds (2000) suggests that the canonical Feature of the class of lexical items referred to as adjectives is [PROPERTY]. Thus if we adopt Wecshler's scheme, the supercategory of [PROPERTY] may be added to the above characterization of adjectives as a class. If, moreover, this characterization holds, it is noteworthy that any Feature is by definition a member of the larger Feature category above it. Thus, for example an adjective that is [+MAXIMAL ENDPOINT] is

necessarily also [+INHERENT], which, in turn, is necessarily [+GRADABLE]. If this proves to be an accurate characterization, I suggest that the relationship between Features shown in Figure 1 may be captured by an implicational hierarchy like the following.

(73) Adjectival Features Hierarchy
[PROPERTY] < [+GRADABLE] < [+INHERENT] < [+MAXIMAL ENDPOINT]

This hierarchy is asserted to be given by UG. An advantage of this approach is that an adjective that manifests one of the adjectival Features below the canonical [PROPERTY] Feature need not further specify any superordinate Features. So, for example, the lexical entries of the adjectives listed in (69) are assumed to be specified only for the most specific feature [+MAXIMAL ENDPOINT]; by definition in the hierarchy, the more general Features, [INHERENT], [GRADABLE] and [PROPERTY], are implied.

Returning to the resultative, Wechsler appeals to the above schema for adjectives to claim that result phrases are either [+MAXIMAL ENDPOINT] or [-GRADABLE]. For him, the difference depends on the verb. Verbs that can be said to be durative combine with [+MAXIMAL ENDPOINT] result phrases (74a, b). The same durative verb combined with a [-MAXIMAL ENDPOINT] result phrase is disallowed (74c).

(74) a. Mary hammered the metal flat.
b. He wiped it clean/dry/smooth.
c.* He wiped it damp/dirty/stained/wet.

Non-durative verbs (a.k.a. punctual verbs), combine with [-GRADABLE] result phrases, according to Wechsler.

(75) a. shoot (the dog) dead
b. cut (the plant) dead
c. kill (the enemy) dead

Arguably, however, there are some problems with Wechsler's proposal. Firstly, there are counterexamples.

(76) a. * Judy shot the intruder unconscious.
b. * Judy banged the door locked.
c. * Judy drained the sink empty.
d. * Judy toweled her hair straight.

In (76a,b) the verbs are punctual and the result phrases are nongradable, but the resultative is ill-formed. Similarly, in (76c,d) the verb is durative and the result phrase [+MAXIMAL ENDPOINT], yet they too are ill-formed. The explanation for these restrictions, however, cannot be selection for complex result phrases as the verbs used in (76) do allow other resultatives.

(77) a. Judy **shot** the intruder **dead**.
b. Judy **banged** the door **shut**.
c. Judy **drained** the sink **dry**.
d. Judy **toweled** her hair **dry**.

Similarly, durative verbs can combine with nongradable result phrases (78), and punctual verbs can combine with [+MAXIMAL ENDPOINT] result phrases (79).

(78) a. The madman **strangled** the poor woman **dead**.
b. The security guard quietly **slid** the door **shut**.
c. Despite the primitive conditions, the surgeon **sawed** the patient's arm **off**.

(79) a. She insisted that we **cut** the tickets (for the raffle) perfectly **straight**.
b. The wizard **zapped** the box **empty**.

Data such as these suggest that whether a verb is durative or not is irrelevant to resultative formation. Simply being an activity verb seems sufficient. Thus any [ACTIVITY] verb can potentially select a [+MAXIMAL ENDPOINT] or [-GRADABLE] adjective.

This leaves us with the following lexical entry for a verb like *paint* as an exemplar of verbs that participate in resultative formation.

(80) paint, V, *f*, <{N / N [INCH] [MAXIMAL ENDPOINT] / [-GRADABLE]}>

This lexical entry is not complete, however, as the Feature content of the selected nominal argument has not been specified.[25] In the next section I discuss the properties of the change-of-state noun.

[25] Notice that I have included Feature specifications and no word class specifications in the lexical entry. Later in this chapter I will suggest that Features are listed in lexical entries, and not word classes.

2.4.3 Features of nouns in resultatives

Compared to the limited discussion of restrictions on result phrases, I know of no discussion of the selectional restrictions on the object of a resultative aside from the widely noted observation that the object of so-called intransitive resultatives is often some type of so-called 'fake reflexive,' (e.g. *John laughed **himself** silly.*) But in the following examples, the ungrammatical resultatives (81) contrast with the grammatical resultatives (82), to suggest that there may be a problem in the choice of object.

(81) a. * The judge shut **the court case** closed.
b. * Alice painted **a picture of her love affair** red.

(82) a. The judge shut **the window** (all the way) closed.
b. Alice painted **her coffee table** red.

Note that it is not a problem of object selection per se. If the result phrase is removed, these verbs can still select these objects.

(83) a. The judge shut {the court case / the window}.
b. Alice painted {a rosy picture of her life / her coffee table}.

The contrast between (81) and (82) illustrates the much cited observation that the postverbal NP in a resultative must be able to change state (Simpson 1983; Levin & Rappaport 1996; Hoekstra 1988). In an earlier section, this change-of-state interpretation was attributed to a selected [INCH] Feature. Yet this proposal cannot explain why the nominals in (81) are ruled out; like other nouns, they too are able to change state.

(84) a. The court case was uncontroversial before DNA testing was involved.
b. Her mood went from calm to erratic in a very short amount of time.
c. The exciting affair turned ugly once they were caught.

When considering the two sets of objects, the licit objects can be seen as different in that they instantiate concrete objects while the illicit ones do not; instead, they are abstract (e.g. *mood*) or eventive (e.g. *court case, life*). Thus, I suggest that verbs in resultatives select nominal objects that instantiate a Feature [CONCRETE].[26]

[26] Emonds posits the nominal Feature [CONCRETE] as the Feature necessary for mass nouns to allow the plural to denote sets. He cites the following examples: *alcohols, skies, waters* (vs. **admirations, *courages, *funs)* (2000: 44).

Notice also that the object must be already in existence for there to be resultative formation (J. Emonds, 2003 p.c.).

(85) a. The workers will paint the (existing) parking lines yellow.
b. # The workers should paint some (new) parking lines yellow.

This is unsurprising since a nominal that is [CONCRETE] would lead to an interpretation that it exists.

It would seem, however, that simply positing selection of a concrete noun is clearly not sufficient. The objects in the following examples are all concrete nouns, but still result in illicit resultatives.

(86) a. * The scholar translated the (Greek) poem Swedish/popular.
b. * The famous presenter introduced the speaker notorious/renowned.

We could solve this problem by arguing that these particular verbs do not select a complex result predicate. Yet there are other examples that cannot be traced to the verb alone.

(87) a. */? Griff swept **the snowman** clear of confetti.
b. * The wind blew **the homeless man** bare.

Notice how the change in result phrase renders these strings grammatical.

(88) a. Griff swept the snowman off the porch.
b. The wind blew the homeless man across the street.

Moreover, the claim that the problem is related to the nature of the objects is supported by the following licit examples.

(89) a. Griff swept **the driveway** clear of confetti.
b. The wind blew **the branches** bare.

Intuitively, it seems as though the action of the verbs in (87) does not suffice to force the needed change in state. This intuition is supported by data showing that these particular objects can give rise to such an interpretation when they occur with other verbs.

(90) a. Griff wiped **the snowman** clean.
b. The policeman shook **the homeless man** awake.

It may be that further investigation will suggest selection of a Feature for the

change-of-state object that is more specific than [CONCRETE]. Another possibility is that some resultatives are unacceptable for pragmatic reasons. As noted by (Grimshaw 1993), pragmatically ill-formed sentences (91) can be 'fixed' if modified appropriately (92).

(91) a. sweep the porch/*cake/*ideas/*meeting (clean)
b. slide the door/*building/*examples/*party (shut)

(92) a. It's not possible to sweep a cake/idea/meeting (clean).
b. It's not possible to slide a building/examples/party (shut).

The same is true of the illicit resultatives in (87). By adding a clause that negates the unnaturalness of the idea embodied in these resultatives, they become perfectly grammatical.[27]

(93) a. It's not possible for Griff to sweep **a snowman** clear of confetti.
b. It's not possible for the wind to blow **a homeless man** bare.

Thus, it seems that the only restriction on the selection of the nominal object in a resultative that presents itself is that it is the nominal [CONCRETE] Feature and that illicit resultatives like those in (87) are not ungrammatical, but simply odd pragmatically. This constraint is extralinguistic and not relevant to questions of syntax per se. Perhaps if there were some context in which these particular combinations would be pragmatically natural, they would be deemed acceptable.

To conclude this section, I have argued that there are lexical restrictions on resultative formation that can be traced to the specification of particular Features by [+ACTIVITY] verbs that select a complex Feature bundle of the form illustrated in the lexical entry for a verb like *paint*.

(94) paint, V, *f*, <{N / [CONCRETE] [INCH] [MAXIMAL ENDPOINT]}>

The Feature-based approach developed in this section is a fruitful way to attempt to capture the seemingly idiosyncratic lexical restrictions on resultative formation. It may be that the exact Features proposed here need to be revised, yet arguably this proposal serves as a useful starting point. In the next section I suggest that there are other more general advantages to this Feature-based approach as well.

[27] Notice that in all of these more acceptable variants, the noun is indefinite. There may be a syntactic difference between the two sets of sentences after all.

2.5 Advantages of a Feature-based approach

The Feature-based approach shows promise in accounting for a fuller range of facts regarding resultative formation than many of the existing accounts. In this section I will explore some of the other possibilities that that this approach suggests. I begin by asking whether many of the mechanisms involved in Theta theory may, in fact, be redundant in an approach that posits a Feature-based lexical selection. I then briefly discuss the notion of event structure, suggesting that it too may be epiphenomenal. I close this section with a discussion of the relationship between subcategorization and selection, claiming that the two are naturally conflated in this approach. In that discussion I also speculate that even word class categories may be seen as epiphenomenal and not primitives in the grammar. We begin, however, with Theta theory.

2.5.1 Theta theory

The intuition behind Theta theory is similar to that underlying the approach in this thesis: there is an extent to which meaning can be seen as fundamental to syntax. Theta theory was developed in an attempt to explain correspondences between regularities in meaning and syntactic structure; and theta roles were proposed to formally express certain grammatical relations. In this section I will try to show that theta roles and theta role assignment can be seen to be a by-product of principles of lexical selection and the general projection of syntactic structure. Arguably this is a better approach. After all, it is uncontroversial that words represent meaning. If they also encode syntactically relevant information that results in a correspondence between grammatical relations and syntax, then theta theory is called into question. Let us begin with a closer look at theta theory.

Emonds (2000) points out that just because identical grammatical relations can be explained by identical structural relationships at the level of deep structure, there is no a priori justification for positing the converse such that identical thematic relations are necessarily an indication of identical structural relations (p. 67). Yet it is this reversal of theory that underlies the much cited Uniformity of Theta Assignment Hypothesis (UTAH).

(95) Uniformity of Theta Assignment Hypothesis (UTAH)
Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure
(Baker 1988: 46)

UTAH takes theta roles as primitives and has been used to posit assignment of these roles to specific structural positions. In addition to the theoretical flaw in the premise of UTAH, UTAH requires a stipulated hierarchy in order to determine which role is paired with which position. The hierarchy proposed by Larson (1988) is as follows:

(96) Thematic Hierarchy
Agent > Theme > Goal > Obliques (manner, location, time, . . .)
If a verb determines θ-roles, θ_1, θ_2, . . . , θ_n, then the lowest role on the Thematic Hierarchy is assigned to the lowest argument in constituent structure, the next lowest role to the next lowest argument, and so on.
(Larson 1988: 382)

If such a hierarchy could be universally supported by crosslinguistic data, it might bolster the claim that theta roles are primitives and that they determine syntactic structure, but there are no such data. The absence of uniform data has resulted in disagreement over the exact order of roles within the hierarchy (see, for example, Jackendoff 1972, Grimshaw 1990), with the positions 'below' the <theme/patient> position causing particular difficulty.[28]

There are a number of other problems that have been highlighted by numerous linguists. (See Jackendoff 1972 for one of the earliest explicit critiques.) Firstly, there is a problem with the actual inventory of theta roles. While everyone working within this approach accepts the basic roles of <agent>, <theme> and <goal>, many other roles have been put forward, such as <source>, <instrument>, <beneficiary>, <manner>, <location>, etc. As theta roles are an attempt to capture meaning, it is not surprising that there would need to be a significant number of roles. But if the point is to match a theta role with a position in syntax, this plethora of roles becomes problematic. By standard X' syntax, there are two privileged positions, complement and Spec position. While there is the possibility of additional structure through adjunction, I am not aware of an accepted order for adjuncts that might match up with the numerous possibilities for oblique phrases.[29]

[28] Larson (1988) glosses over this problem by simply listing 'obliques' in (96).
[29] Though the work of Cinque (1999) suggests a way forward in this endeavor, a conclusive ordering for adjuncts has yet to be established.

There has also been much disagreement over the labels themselves, as no set of labels seems to capture the facts adequately. This is true even in terms of the three above-mentioned 'basic' theta roles. For instance, there has never been agreement on whether the typical object role is <theme> or <patient>, the former understood to be an entity that moves while the latter suggesting an entity that has been acted upon to effect some change. Similarly, the <beneficiary> role is sometimes replaced by <recipient> and the <goal> role by <location>. Even the <agent> role is known to fail in its remit to include all subjects. There are subjects that are clearly non-agentive.

(97) a. The breeze scattered the petals across the lawn.
b. The atmosphere at the rally persuaded him to become more involved.
c. Our new understanding of the situation gave us hope.

Additionally, the subjects of so-called psych verbs, illustrated in the following sentences, are not agents.

(98) a. Children fear ghosts.
b. I constantly worry about my deadlines.
c. I always enjoy a fine meal.

To account for this problem, the additional role of <experiencer> has been proposed (Baker 1997, Dowty 1991, among others). Others have addressed the psych verb problem by arguing that the structures in (98) are derived by movement from other sentences which instantiate the theta roles in their canonical positions (Belletti and Rizzi 1988).

(99) a. Ghosts frighten children.
b. My deadlines worry me.
c. A fine meal pleases me.

It is not clear, however, how to situate the two roles <agent> and <experiencer> in the hierarchy. Baker (1997) avoids this problem when he accepts Dowty's (1991) approach such that the concept of subject is 'fuzzy' enough to incorporate both. Thus, for Baker, there is a single 'proto' subject role that includes <agents> and <experiencers>.

As with psych verbs, in order to maintain the notion of a hierarchy, all argument structure alternations require analyses involving movement, coupled with UTAH, including the dative (100), locative (101) and unaccusative (102) alternations.

(100) a. I wrote a letter to my grandfather.
b. I wrote my grandfather a letter.

(101) a. John smeared paint on the wall.
b. John smeared the wall with paint.

(102) a. The movers broke her best china.
b. The china broke (during the move).

Moreover, there are data which suggest that some verbs must list completely different sets of theta roles, or, perhaps, be listed as different lexical entries altogether. Consider the following data.

(103) a. I got **the milk** from the store.
b. Jill became **a doctor** in 1996.
c. Henry felt **the cover** to see if it was dry.
d. Amanda grew **tomatoes** on her windowsill.

(104) a. I got **angry** when I heard the news.
b. Jill became **ill** in 1999.
c. Henry felt **sad** after leaving home.
d. Amanda grew **interested** in botany the more she read about it.

By theta theory each of the objects in (103) would be considered a <theme/patient>. The same verbs, however, cannot possibly be said to assign <theme/patient> roles to object position in (104) as all of these verbs are followed by adjectives that cannot be characterized as themes or patients. Indeed, theta role assignment is generally discussed in the context of nouns or prepositional phrases. And to my knowledge, there are no proposals of specific theta roles that are appropriate for states like the above adjectival arguments. Perhaps some kind of raising analysis could account for the non-agent roles of the subjects in (104). Even so the examples in (105) confirm that the postverbal adjectives are still complements/arguments, begging the question of what theta role they are to be assigned.

(105) a. * I got.
b. * Jill became.
c. * Henry felt.

Also problematic is the optionality of certain theta roles, especially oblique roles. Presumably the lexical entry of a verb lists all the possible theta roles, but the verb only 'discharges' an oblique role if there is an argument to receive it. This

tweaking of the theory is needed not only for adjuncts, but for complements as well. Consider the following pairs.

(106) a. Teti taught English.
b. Colin asked too many questions.
c. Steve paid the bill.

(107) a. Teti taught the new students.
b. Colin asked Hal.
c. Steve paid the bank.

These so-called ditransitive verbs are able to discharge <theme/patient> roles in (106) and <recipient> roles in (107) (Emonds 2000: 403). But how is it that some theta roles can remain unassigned? And why is it that sometimes the 'higher' <theme/patient> role is omitted while at other times it is the 'lower' <recipient> that remains unexpressed?

Similarly, there are a number of verbs that allow a variety of grammatical relations. The verb *get*, shown above to select a <theme> (103) or an adjectival complement (104), might also be considered 'unaccusative,' discharging a <theme> role (108a) or a <goal> role (108b) to the argument in object position.

(108) a. We got **the letter** to Seattle in three days.
b. The letter got **to Seattle** in three days.

Likewise, the verb *grow* has the added ability of taking a single argument in subject position, an argument which could not possibly be said to be an <agent>. (Compare (109) with (103d) and (104d).)

(109) **Amanda** grew (2 centimeters in just a year).

This problem might be solved if *Amanda* is considered an <experiencer>. Or, perhaps, this sentence is derived. The corresponding alternation, however, is not possible.

(110) * Healthy eating / Nature / Amanda's mother grew Amanda.

There are, in fact, a other 'internally caused' verbs (Levin and Hovav 1995) like *grow* that do not alternate in English.

(111) a. *The explicit magazine blushed Louise.
b. *The pollen from the flowers sneezed Louise.

These have required additional analysis within the analyses of unaccusatives.

The point of this discussion is that there are numerous challenges to theta theory and exceptions to the thematic hierarchy that each need additional analyses – and all of the challenges listed here come from English alone. What we are left with is a substantial number of explanations that are put forward to account for lack of adherence to the thematic hierarchy. Another option would be to question the hierarchy itself altogether, as well as the standard mechanism of theta role assignment. If the regularities in meaning that hold between grammatical relations could be accounted for using existing mechanisms, there may be no reason to posit a separate theta theory. The many challenges to theta theory encourage us to look in other directions, a conclusion further bolstered by the discussion of theta theory in the context of resultatives.

2.5.1.1 Theta theory and resultatives

As already mentioned, one reason the resultative has attracted so much attention is the unique interpretation that is associated with it. To qualify as a resultative, a verb, noun, adjective combination must give rise to the specific interpretation in which the noun changes to a new state, specified by the result phrase, and as a result of the action of the verb – and not a depictive interpretation. Bowers (1997) accounts for the distinctive resultative interpretation by appealing to traditional theta role assignment (Gruber 1965, Jackendoff 1972), as well as the universal theta role hierarchy. For Bowers, then, the assignment of a <goal> theta role to the object NP gives rise to a result interpretation: the theme is affected by some action such that it changes *to* some new state. Yet there are problems with this proposal.

In addition to the aforementioned problems with theta theory in general, there are specific problems in terms of the resultative. Like in other structures, the assignment and/or listing of such a <goal> role must be optional.

(112) a. The hair stylist cut Liz's hair (short).
b. The villain shot the man (dead).
c. She scrubbed the table (clean).
d. The artist painted the sculpture (red).

More problematically, it's not clear that these result phrases *short, dead, clean, red,* nor most adjectives, in fact, can be considered goals; goals are usually associated with notions of location or place. As noted above, among the many theta roles that have

been suggested, there is, to my knowledge, no theta role that captures the notion of *state*. To accommodate these resultatives, we would need to extend the notion of goal, perhaps to forming some kind of 'proto' goal role, following Baker (1997).

A proponent of theta theory, however, might counter this charge by claiming that it is precisely the assignment of <goal> that gives rise to the interpretation in which there is a change *to* a new state. But this counterargument would fall short of the facts. If the secondary predicate in a resultative can be characterized as a goal, then other more canonical 'goals' should also be possible. The following semantically plausible combinations include result phrases with overt prepositions that would cause the phrases to be uncontroversially considered 'goals'. Yet they do not give rise to licit resultative interpretations.

(113) a. * The hair stylist cut Liz's hair to close to her scalp.
b. * The villain shot the man to his final resting place.
c. * She scrubbed the table (in)to the corner.
d. * The artist painted the sculpture to the exhibition.

In Section 2.1 I suggested that resultatives with result phrases introduced by a preposition are more productive than those with adjectival result phrases. And indeed there are strings, sometimes called resultatives, that are comprised of prepositional secondary predicates that would be uncontroversially considered 'goals' in theta theory.

(114) a. Andrea hammered the picture **to the wall**.
b. The taxi driver drove us **to the station**.
c. The audience laughed the amateur actor **off the stage**.
d. The waiter knocked the saltshaker **off the table**.

In these examples the direct objects (*viz. the picture, us, the amateur, the saltshaker*) have changed location, but they have not undergone any change of state. In this way they differ from the sentences in (112), which entail a change of state and better exemplify the type of structure that is considered a resultative.

Finally, if the result phrase receives a <goal> theta role, then the expected interpretation should be one in which there has been some change in location. But this is not necessarily the interpretation associated with resultatives (see (112)). Furthermore, there are examples of result phrases that are even introduced by goal prepositions, yet still don't give rise to a change in location interpretation.

(115) a. The jailors beat him **into** submission.
b. He dyed the t-shirt **into** a beautiful shade of blue.
c. She drove me **to** distraction with all her questions.
d. Teenaged boys can eat you **into** poverty / **out of** house and home.

In short, the resultative is more accurately characterized as entailing a change of state than a change of location. Thus even though the claim that certain verbs assign <goal> to a secondary predicate might explain an interpretation in which there is a change of location, it does not suffice to explain the change-of-state interpretation unique to objects in resultatives.

Instead I suggest that the Feature-based approach developed in this thesis can incorporate the intuitions captured by theta theory, but in such a way that theta roles can be accounted for as epiphenomenal and not primitives in the grammar. If the selected complex predicate contains the cognitive Features proposed in the previous section, then the sense in which the nominal reaches some different state is accounted for without any added machinery. Specifically, the selection of an [INCHOATIVE] Feature is going to result in a change of state meaning in the secondary predicate.[30] The replacement of theta roles by Features seems a natural way to extend Feature theory. Additionally, it makes explicit the distinction between F Features and theta roles, thereby addressing a concern noted by Morita that for Emonds (2000) this distinction is blurred (2003: 590).

If this proposal is along the right track, then the Theta Criterion itself may also be seen as epiphenomenal. Baker (1988: 37) states the Theta Criterion as follows.

(116) Every term of LF that requires a theta role (each argument) is associated with one and only one position to which theta roles are assigned, and each theta role determined by the lexical properties of a head is uniquely associated with one and only one argument.

By Feature-based selection, when a lexeme, Y, selects a Feature, this Feature is realized as a head, X. In this way, the head Y 'is uniquely associated with one and only one argument,' viz. X, and each argument is associated with only one position, as determined by selection.

Another promising point germane to this discussion of theta roles is that the

[30] Perhaps this [INCHOATIVE] Feature ought to be analyzed as an adjectival Feature and not a predicate feature. If so, it may be that any overt instantiation of this Feature as the head of a PrP is in fact the Alternative Realization of this Feature from the result phrase. See Emonds (2000, Chap. 4) for a discussion of Alternative Realization.

extent to which the noun in a resultative is 'affected' can also be captured by this approach. The [INCHOATIVE] Feature is going to give rise to a sense of affectedness without any additional specification. The notion of affectedness has led to the argument for a 'patient' theta role as distinct from a 'theme' theta role, which is reserved for moved objects (Culicover and Wilkins 1984, Jackendoff 1987, a.o.). Arguably, however, the source of affectedness interpretation is the whole secondary predicate and not the object alone. If verbs in a resultative discharge a <patient> theta role, it would be difficult to explain why the object is not affected in the following resultatives.

(117) a. # Alex hammered the flat metal flat.
b. # Alex pushed the already shut door closed.
c. # Alex wiped the spotless counter clean.

In other words, there is nothing to stop the verb from still discharging its <patient> theta role, but in these examples no affected interpretation obtains. By the Feature-based account, in contrast, these sentences are odd for pragmatic reasons; the additional modifier simply conflicts with real world meaning of the sentence.

One wonders if this approach might clarify some of the observations that have led to other claims for 'affected' objects. For instance, the variant of the locative alternation in which the goal NP is the direct object of the verb has been noted to give rise to the interpretation that the object has been completely affected by the action (118a), in contrast with the alternate in which the object is the noun that has moved (118b).

(118) a. Alice loaded **the wagon** with hay = the wagon is full of hay
b. Alice loaded hay **onto the wagon** ≠ the wagon is full of hay

Perhaps the verb *load* in (118b) selects a concrete noun as well as a [PATH] argument, giving rise to an interpretation of movement; whereas selection of a 'container' noun gives rise to a sense of affectedness because of the Features of the adjunct *with*-clause.

A second example is middle formation, which is said to apply only to arguments that can potentially be affected (Zubizarreta 1987, Giorgi and Longobardi 1991, Tenny 1992, Levin 1993, Saeed 1997). In the following examples given by Levin (1993: 26), the object of *cut* is interpreted as being affected and can undergo middle formation, but the object of *adore* is not and cannot.

(119) a. The butcher cuts the meat.
b. The meat cuts easily.

(120) a. Kelly adores French fabrics.
b. * French fabrics adore easily.

Yet this claim seems to overlook a basic difference between the two types of verbs. *Cut* is an [+ACTIVITY] verb while *adore* is not. It is not surprising that an [+ACTIVITY] verb like *cut* will give rise to an interpretation in which the object is affected. Stative verbs like *adore*, by contrast, would not be expected to have the same effect.

And in a final example, affectedness is also relevant in the so-called conative alternation (Anderson 1971). The action in (121a) necessarily entails affectedness as the interpretation is that Phil was hit, in contrast to (121b), in which Phil may or may not have been hit and, thus, affectedness in not entailed.

(121) a. I shot Phil.
b. I shot at Phil.

As the direct recipient of the action of the verb, *Phil* is expected to be affected. With the addition of a [DIRECTION] preposition, *at,* however the interpretation is one of target and not affectedness.[31]

In sum, particular Features inherent to lexical items have basic meaning such as goal, source, location, etc. When a verb selects a Feature its particular meaning is going to be expressed. There is no need for the additional mechanism of theta theory. Admittedly, these speculations require more discussion and need to be explored more broadly. But they illustrate a line of enquiry that develops naturally out of a Feature-based theory of lexical selection. If lexical items are uncontroversially assumed to embody meaning, and if some of that 'meaning' is part of the formal theory, it seems more parsimonious to explore this mechanism as the source of correspondences between syntax and interpretation than to posit an added layer of explanation via some kind of theta theory. Additionally, there are other areas which may benefit from this articulated Feature-based approach, namely the notion of event structure, explored in the next subsection.

[31] See also Gropen, Pinker, Hollander and Goldberg 1991), who argue for the linguistic significance of affectedness based on experimental data in first language acquisition.

2.5.2 Event structure

It has been observed that resultatives instantiate a telic event. Some have defined resultative formation as a process of adding a result predicate to a simple transitive clause thereby turning activities into accomplishments (Dowty 1979, Pustejovsky 1991, Rapoport 1999) . So-called accomplishments are characterized as being telic events. Linguists taking this sort of Vendler-inspired perspective (Vendler 1967) often appeal to some extra-syntactic level of 'event structure' to account for this kind of change in interpretation. Yet it is not clear that this addition of structure is needed. It would be more desirable if semantic-based notions like activity and accomplishment could be derived on the basis of existing processes. As long as some form of selection is accepted, the approach developed here which simply articulates this mechanism of selection more specifically may, arguably, be a better way to derive these 'events'. Through selection of a complex Feature bundle consisting of a nominal Feature, an adjectival Feature and an inchoative Feature, the telicity of the complex predicate is derived.

This compositional approach to telicity is more in line with the theory of aspect proposed by Verkuyl (1972, 1993) who also sees qualities such as telicity as being compositional properties of phrases. And it renders both the accomplishment reading and telicity as epiphenomenal and not deserving of any separate, privileged, or stipulated status in the grammar.

This Feature-based theory also provides a more formal way to incorporate some of the ideas that have emerged from the decompositional approach to verbs by lexical semanticists who have built on the descriptive work of Talmy (1985). Talmy shows that languages differ in the way in which they 'conflate' meanings of verbs. Levin and Rappaport (1995), for instance, argue that every verb is associated with two lexical representations: the lexical semantic representation, which includes those aspects of verb meaning that are relevant to syntax, and the lexical syntactic representation, which determines the number and type of arguments required by the verb.[32] By the theory of the lexicon developed here these representations are not two different representations, but instead are manifestations of the single lexical entry of a verb: the verb is listed as complex of Features that specifies the selection of Feature-based arguments.

[32] Lexical semantic representation has also been called lexical conceptual structure (Jackendoff 1990).

To be fair, the 'two representations' of Levin and Rappaport can be seen as two aspects of a single lexical entry like a Feature-based theory does. Yet Levin and Rappaport go further to claim that certain combinations of primitives form so-called lexical semantic templates (what Pinker 1989 calls thematic cores). It is not entirely clear what status these templates have in the grammar. They claim that 'verb classes themselves are not primitive, but are derived from the combinations of more basic lexical semantic substructures' (1995: 29). But these substructures seem to have some primitive-like role in the grammar, giving rise to 'events' with 'subevents' (p. 83) which then participate in certain rules giving rise to syntactic changes like the causative/inchoative alternation, for example.

The Feature-based theory, by contrast, posits meaning based on Features, but the verbs are not attached to particular templates. This does not preclude regularity of verbal behavior as verbs that select similar or equivalent Feature combinations may give rise to the same syntactic patterns. But I assume that such patterns are generated by the syntax whenever such a verb is used and that there is no template. The claim that lexemes are made up of Features has other ramifications. In the next section I explore the notions of subcategorization and selection in terms of this approach.

2.5.3 Subcategorization as selection

The analysis of resultative formation in this chapter relies crucially on the mechanism of selection. What I have not addressed, however, is the question of subcategorization and its relationship with selection. The notion of c-selection and s-selection can be traced back to Chomsky (1965) who proposed subcategorization as a mechanism in which a head specifies categorial features of complements, and selection as specification of semantic restrictions. Additionally, strict subcategorization is assumed to hold between a head and its complement in a sisterhood relationship. Selection, by contrast, was said to characterize selection of all types of arguments, including subjects.

Pesetsky (1982) suggested that subcategorization (which he called c-selection) could be reduced to semantic selection (labeled s-selection) and other principles of syntax, namely Case assignment. The crucial data is the difference between verbs like *ask* and *wonder* (Grimshaw 1981); both are said to s-select a question, but while the selected question can be realized as a CP or a DP in the former (122), it can only be realized as a CP in the latter (123).

(122) a. John asked what time it was.
b. John asked the time.

(123) a. John wondered what time it was.
b. * John wondered the time.

Pesetsky's proposal is that *ask*, but not *wonder,* can assign Case to its complement. Thus (123b) is ruled out for reasons of Case. In short, for Pesetsky there is no need to specify categories in selection; s-selection (with Case assignment) is sufficient. Yet there are problems with this proposal — both empirically and for theory internal reasons.

Odijk (1997) points out that there are verbs that (exceptionally) Case mark their complements, but do not allow DP.

(124) a. He made/let them do it
b. * He made/let it.
intended interpretation: He caused it.

And Svenonius (1994) shows that there are verbs that select DP complements, but not CP complements.

(125) a. This proposal captures the observation that no even numbers are prime.
b. * This proposal captures that no even numbers are prime.

(126) a. This formulation of the rule reflects the fact that all NPs behave uniformly.
b. * This formulation of the rule reflects that all NPs behave uniformly.

He further notes that it is difficult to see how s-selection could explain these facts.

In addition to these empirical problems with Pesetsky's attempt to reduce c-selection to s-selection, there are two theory internal problems that are worth mentioning. The first is that appealing to differences in Case assignment to explain data like that in (122) and (123) involves stipulation within lexical entries since only a subset of verbs cannot assign Case. As such it is not much of an improvement over the (idiosyncratic) specification of category selection (Svenonius 1994: 134). The second theory internal problem is much broader. In the rich (and rigid) tradition among generative linguists that syntax is autonomous from semantics, any attempt to reduce category selection to semantic selection risks blurring the lines. Grimshaw (1981) states this explicitly:

> It is universally agreed by linguists that the syntactic categories of a language are defined in structural not semantic terms. Syntactic categorization is autonomous, since syntactic category membership is not reducible to meaning. (p. 172-3)

Despite this resistance to characterizing syntax as in any way semantic, this is what I have done in this thesis; certain semantic Features are assumed to have syntactic relevance in addition to (some degree of) meaning. Though one may insist that this contradicts the basic premise of autonomous syntax, it is, arguably, implicit in many current models. For instance, it may be likened to the intuition within the Minimalist Program underlying so-called 'interpretable' features such as number or tense, which are assumed to contribute some degree of 'meaning' at LF. It is also accords in spirit with Grimshaw's 1993) distinction between semantic structure, which is 'visible' to certain syntactic operations, and semantic content, which is not.

My particular approach, however, is more in concert with the suggestion of Svenonius (1994) that there may be cause for a more articulated view of lexical semantics. Arguably, since lexical items uncontroversially embody meaning, positing intrinsic semantic Features that affect syntax is a more natural extension of the theory than the addition of some completely independent mechanism (such as theta theory). In the next section I pursue the idea of Features further, suggesting that if they are seen as intrinsic to lexical items, c-selection and s-selection may be unified.

2.5.3.1 Eliminating categories: Canonical Features

According to Emonds (2000) certain Features are canonically associated with certain categories. So, for instance, verbs are said to canonically bear [ACTIVITY], an association to be given by UG. Similarly, prepositions are canonically associated with Features like [LOCATION], adjectives with a [PROPERTY] Feature and nouns with the Feature [CONCRETE]. By pushing the notion of Features to its limits we can question the whole notion of category. Consider the early suggestion by Chomsky (1970) that categories may be seen merely as convenient labels for particular (bundles of) Features: 'It is quite possible that the categories noun, verb, adjective are the reflection of a deeper feature structure, each being a combination of features of a more abstract sort' (p. 199). Though this suggestion may be implicitly accepted by most researchers, there has been very little explicit discussion of just what these abstract features may be.

Emonds' Feature theory explicitly develops this suggestion. For example, if a lexical item carries the Feature [+ACTIVITY], it will behave syntactically in a manner that designates it as a verb, as traditionally understood. Of course, not all 'verbs' are [+ACTIVITY] verbs. Yet stative verbs can still be seen to carry an [ACTIVITY] Feature; the difference is that it is the negative value of the Feature, viz. [-ACTIVITY]. Emonds suggests that for the sake of reducing redundancy, canonical Features need not be specified in lexical entries. Only non-canonical Features such as [-ACTIVITY] require specificity, a Feature considered an 'absence of content' Feature.

In my proposal I agree with the notion of universal association between certain Features and particular classes of lexical items. Furthermore, it is desirable that we reduce redundancy by considering a grammatical category to be a canonical Feature; but I suggest that we do so by removing the category information, not the Feature specification. If this is a valid proposition, it may allow us to do away with grammatical categories altogether – especially if canonical Features are assumed to be universally associated with specific syntactic behavior. So, for example, verbs are simply the set of lexemes that instantiate [ACTIVITY], adjectives [PROPERTY], etc.

If there are no categories, then the traditional distinction between c-selection and s-selection also dissolves, leaving us with a unified notion of selection. What has traditionally been labeled c-selection is reanalyzed as selection for a canonical Feature. And selection for a more specific Feature is the basis for the more fine-grained specification, known by standard accounts as s-selection. For instance, there may be selection for a broad canonical Feature such as [PROPERTY] that can be satisfied by any lexical item in the broad class of lexical items that distribute adjectivally; or selection may be limited to a subset of these lexical items because of a more specific Feature requirement such as [GRADABLE].

The traditional s- vs. c-selection distinction goes beyond the issue of meaning vs. category, however. As originally conceived, c-selection is 'strict' in that it holds for the structural sister of the selecting head. On the other hand, s-selection has been assumed to hold for non-sister arguments and in particular, subjects. Yet while this distinction is commonly accepted, it is not without problems. In particular, instances of non-local c-selection are known to exist. Leaving resultatives aside, there are examples of what are traditionally considered c-selection restrictions on other types of so-called small clauses (Svenonius 1994: 144).

(127) a. The police **want** the suspect **arrested/*an example**
b. The club **named** Bartholomew ***honorary/an honorary member**.
c. The incident **made** the criminal **famous/*a maniac**.

Any notion of strict subcategorization as a sisterhood condition would have to be weakened to explain data like those in (127).

Svenonius (1994) highlights other examples of non-local selection as well, citing data that he attributes to Grimshaw (1981).

(128) a. I don't **care** whether or not I **get** the Nobel prize.
b. * I don't **care** whether or not **to get** the Nobel prize.

(129) a. I don't **know** whether or not **to work** on that.
b. I don't **know** whether or not I **should work** on that.

In (128) the matrix verb *care* seems to require a finite embedded clause while the verb *know* in (129) allows either a finite or nonfinite clause. As the structural sister of the matrix verb is certainly *whether* in C, it is not clear how to characterize this kind of long distance selection.[33]

In short, examples of non-local selection confound what has come to be known as the c- vs. s-selection distinction. If all selection were viewed as unified, on the other hand, there would no longer need to be a formal distinction. The remaining problem, however, would be to account for the structure that is projected by selected lexical items. Though selected complements are held to be the syntactic sisters of their heads, it's not clear that this structural assumption necessarily needs to be a property of selection. Indeed there is no theory internal reason that I'm aware of why the notion of strict sisterhood couldn't be abandoned, a move that is supported by data showing non-local selection. Let us explore this suggestion by returning to the resultative.

2.5.3.2 Selection and resultatives

The semantic restrictions involved in resultative formation are an instance of non-local selection since the complex predicate structure is assumed to be a Predicate Phrase that houses the two lexical phrases that lead to its change-of-state

[33] Actually, it is unclear whether selection of +/- finiteness ought to be considered categorial or semantic as the notion of finiteness is a matter of debate. For instance, while Huang (1993) argues that there is a Finiteness projection but no Tense projection in Chinese, it's not clear that such a proposal holds crosslinguistically.

interpretation. Throughout this chapter we have assumed that a particular lexical entry specifies the selection of certain Features without any reference to structure because the actual projection of structure is left exclusively to principles of syntax (such as X'-theory and extended projections).

Using the resultative as an example, lexical items containing an [ACTIVITY] Feature may select a complex <[CONCRETE] [INCH] [MAXIMAL ENDPOINT]> argument. This selected (complex) argument can be satisfied by any lexical items that fulfill the specified Feature requirements. As [CONCRETE] is typically a nominal Feature and [MAXIMAL ENDPOINT] is an adjectival Feature, the expected structure will be heads which we can label V, N and A for convenience.[34] And, by X'-theory, heads will project as maximal phrases. Then, by extended projections, some phrases will project further functional phrases (e.g. NP projects DP). Thus from the lexical Feature specification, syntactic principles will derive the structure: V NP AP. The final step is to satisfy the instantiation of [INCH] by a Predicate head, which will project its own maximal phrase structure. Thus the complex NP AP complement is housed in the projected PrP. And, the universal constraint of binarity is preserved.

In this discussion, selection is assumed to hold for specified complements, distinguishing arguments from adjuncts. This assumption is supported by data from Rapaport (1999: 654) that show that the same string can give rise to either a resultative interpretation or a depictive interpretation.

(130) Jones slapped Smith sober.
=Smith became sober as a result of the slapping (resultative)
=Jones was sober when he slapped Smith (subject depictive)

This can now be explained if the lexical entry for *slap* specifies selection of a simple object as well as the optional selection of a complex result predicate. Presumably, the resultative reading obtains when the complex predicate is projected. The adjective *sober* is interpreted as a subject-modifying adjunct, by contrast, when the nominal object is the only selected head.[35]

One potential challenge to this analysis, however, is the range of result phrases that occur in structures that have been called resultatives. While many result phrases project as categories that would be descriptively considered APs, some project as NPs

[34] I will continue to use the traditional category labels during exposition for convenience.
[35] What remains unclear, however, is why an object depictive reading is ruled out in (130).

or PPs. The examples from Carrier and Randal (1992) given earlier are repeated here.

(131) a. * She pounded the dough [$_{NP}$ a pancake].
b. She painted the barn [$_{NP}$ a weird shade of red].
c. They ran their sneakers [$_{NP}$ a dingy shade of grey].

This is not a problem, however, if one considers that lexical items may instantiate a bundle of Features. Thus, for example, it may be that a nominal like *shade* in (131b, c), may contain the [PROPERTY] Feature necessary to satisfy the resultative specification. While this remains to be shown, it does seem that nominal result phrases such as these can be described as denoting a property. Moreover, the interpretation of *shade* contrasts with the noun *pancake* (131a) which, arguably, does not give rise to a meaning that suggests that it carries any [PROPERTY] Feature.

This suggestion is potentially problematic, however, because [PROPERTY] was suggested as a canonical (=defining) Feature of adjectives. Any lexical item bearing this canonical adjectival Feature would be projected as an adjective and not a noun. This problem may be resolved if we posit lexical items to bear bundles of Features and if the first Feature in that bundle has privileged status. Thus, for instance, the Feature bundle for the word *shade* may be [CONCRETE]:[PROPERTY], with a colon indicating that the Features are instantiated in a single lexical item. I suggest that because the first Feature is a nominal Feature, *shade* will project as a noun. [36]

Turning to resultatives with PP result phrases, earlier we noted the goal reading in the complex predicate that has let some linguists to posit the assignment of a <goal> theta role in sentences such as the following.

(132) a. Andrea hammered the picture **to the wall**.
b. The wind blew the sailboat **across the water**.
c. The audience laughed the amateur actor **off the stage**.
d. The waiter knocked the saltshaker **off the table**.

Though sentences like these have been considered resultatives, I suggested that these complex predicates are different as they instantiate a [PATH] Feature, realized as a prepositional phrase. Absent from these selected complex predicates is any [INCH]

[36] Alternatively, it may be that the phrase itself carries the Feature [PROPERTY] and not the nominal head *shade* in (131b, c) above. Such Feature percolation is analogous to phrases like *in whose name*, which are assumed to carry some WH Feature despite a non-WH head.

Feature. The lexical entry for *hammer,* for instance, might look like the following.[37]

(133) hammer, *f,* [ACTIVITY], <{ N / [CONCRETE] [PATH]}>

Since [PATH] is a prepositional Feature, it would be expected that it would project as a prepositional phrase and not a Predicate Phrase. Furthermore, the (transitive) preposition, [PATH] will further select a nominal argument. This Feature combination will give rise to the interpretation of a resulting state, but notice that the change is one of location and not some inherent property.

This Feature-based approach to lexical categories points to other areas that deserve investigation. These will be touched on briefly in the next section.

2.5.3.3 Feature bundles: Some further speculation

This theory of lexical Features may be able to explain the long-noted observation that there is a degree of variation among languages in terms of their inventory of categories (Baker 2003, a.o.). Korean and Japanese, for instance, are well known for having a set of lexical items whose meanings translate as adjectives in English but that act like verbs in that they require verbal tense and aspect markers. The same is true of Mohawk, according to Baker (2003), who notes that the verbal behavior of adjectives has led traditional Iroquoian grammarians to insist that there are no adjectives in Mohawk at all.

To clarify the situation, consider that the Features discussed here are assumed to be part of an inventory given by UG. Crosslinguistic variation suggests that languages may choose from the set of possible Features to combine them in different ways. For instance, perhaps 'adjectives' in Mohawk, Korean and Japanese contain an [-ACTIVITY] Feature in addition to the [+PROPERTY] Feature. Thus, they are interpreted as 'adjectives,' but give rise to verbal properties as well. In this way, lexical items that distribute like adjectives in one language may distribute differently in another, yet still be interpreted as adjectival. Thus, by developing this notion, we may be able to address the crosslinguistic variation that has long been noted by typologists (see Givon 1979, Wetzer 1996, among others).

Additionally, if languages combine different Feature bundles, then particularly

[37] I have not specified what Feature is selected when *hammer* selects a simple nominal object as the investigation into the properties of this object would take us too far from the topic at hand.

idiosyncratic Feature configurations within one language would also be expected. This might explain the intuition that some lexical items in a language are better exemplars of a category than others. For example, there is a sense in which *table* seems more 'nouny' than the abstract notion *destruction*, or the complex noun *upstairs*, which nonetheless distributes like a noun (*I explored the upstairs.*)[38] To give a second example, Ogawa (2001) claims that certain nominals in Japanese can be characterized using the stage vs. individual level distinction usually reserved for adjectives or verbs. If his work proves valid, it may be that certain nominals in Japanese include Features that are more commonly associated with (the set of Features that characterize) predicates. In short, the Feature-based model of the lexicon developed in this chapter may be able to better explain unresolved questions of crosslinguistic differences of lexical behavior.

2.6 Conclusion

In this chapter I have presented an analysis of resultative formation that includes the syntax and derivation of the structure, the lexical restrictions on the component parts, and the extra-linguistic identification of the resultative as a regular structural pattern as well. I have suggested that whether a resultative string can be generated is subject to syntactic principles such as X'-theory as well as Feature-based lexical selection restrictions. More specifically, the *resultative* refers to a string that has a definable structure, both in terms of syntax (a Predicate Phrase) and semantics (selection of [CONCRETE] [INCH] and [MAXIMAL ENDPOINT] by a lexical item that is [+ACTIVITY]). Then, once a string is outputted by the grammar, the norms of language use cause some forms to be more familiar and hence more acceptable than others. The identifiable syntactic patterns provide a linguistic basis for creative expression and possible lexicalization as idioms. This view of 'constructions' accords with O'Grady's (1998) work on idioms, but his theory-neutral claim of licensing of heads is replaced by the lexical selection of arguments as specified in lexical entries.

In my investigation of the resultative, I have also utilized the Feature-based approach proposed by Emonds, showing that that it can clarify some of the seemingly quirky restrictions associated with a regular structural pattern like the resultative. I

[38] This Feature-based approach might also accord with a prototype theory, thus incorporating insights from researchers like Rosch (1973) in psychology.

then suggested that it may be able to reduce some of the redundancy between syntax and the lexicon that exists in most models. Firstly, I suggested that the element of meaning associated with Features may obviate the need for an additional mechanism for theta role assignment. This is because the grammatical functions of selected arguments are expressions of intrinsic Features.

I also suggested that this Feature-based system might be able to incorporate other semantic aspects of grammar such as so-called event structure which distinguishes between activities, states, achievements and accomplishments. Additionally, if lexical items are instantiations of Features which are selected, and if certain Features are canonical in that they have universally identifiable syntactic significance, the distinction between c-selection and s-selection can be removed from the theory. And lastly this approach offers the beginnings of an answer to the generally unasked question of what differentiate lexemes in terms of category. Perhaps categories are in fact just useful shorthand for phenomena that have a more formal explanation.

In the next chapter I explore a second aspect of Emonds' framework, that of morphology and multi-level lexical insertion. In that chapter we will see that in languages like Korean the resultative includes an overt functional morpheme. Through the discussion of the resultative morpheme in Korean, we will explore the mechanism of multi-level insertion.

Chapter 3 Multi-level Insertion and the Korean Resultative

3.0 Introduction

One of the aims of Emonds' model of grammar is to posit an articulated lexicon and general principles of syntax as the (only) mechanisms underlying the generation of syntactic structure. Thus, there is no autonomous component for morphology in this system. Instead, morphology is implicated throughout derivation. The aim of this chapter, therefore, is to explore questions of morphology and word formation in the context of this model of grammar.

To do so, I first discuss issues in morphology more broadly. In Section 3.1 I present the traditional notions of derivation and inflection and then show how Emonds' proposal of three types of morphemes figures into the derivation/inflection distinction. In that discussion I make explicit the fact that this framework includes a perspective in which morphology refers to a process as well as to lexical items when it posits three types of morpheme that enter syntactic derivation at three different levels of lexical insertion. I attempt to illustrate the theoretical claims in that section by asking why certain derivational adjectives are barred from resultative formation in English.

Next, I turn to resultative formation in Korean to explore further possibilities within this framework. Specifically, I analyze the Korean resultative *-key* morpheme, arguing that insertion of *-key* in the syntax versus PF insertion accounts for syntactic differences that have been noted in the literature.

3.1 Morphology in derivation

3.1.1 The traditional division between derivation vs. inflection

The labels derivation and inflection have been traditionally used by morphologists and syntacticians alike to distinguish bound morphemes which seem to be qualitatively different. In this section I briefly present the differences between derivation and inflection and then discuss how the theory of multi-level insertion accords with the traditional distinction between types of morphemes.

Generally speaking, derivational affixation is thought to be a lexical process, a kind of word formation, while inflectional affixation is thought to be syntactic in nature. This general difference is often taken to be a defining criterion. Anderson

(1982) is commonly credited for proposing that morphemes are inflectional if they are relevant to syntax. Exemplifying this is the 3rd person singular *-s* agreement morpheme in English. In a sentence like (1), the agreement affix on the verb is relevant to syntax in that it is determined by the phi features of the subject.

(1) a. **Emma** plays the violin for three hours every day.
b. I play the violin once a week.

This contrasts with derivational morphemes, which, for example, do not depend on the properties of other individual words in the sentence. The bolded suffixes in (2), then, are considered derivational.

(2) a. We/I/They/She will weather**ize** the window(s) before the first snow.
b. They/I talked/will talk to the act**or** after the show.
c. The delay is/was due to mechanic**al** failure(s).

A second criterion often suggested to distinguish derivation and inflection has to do with productivity. Inflection is said to be entirely productive while derivation may not be. However, it is well known that the notion of productivity is, in the words of Spencer (1991), "extremely slippery" (p. 88). The definition of productive to be used here is any morpheme that "occurs in a formally stateable context with all but a finite list of exceptions" (Emonds 2000: 121). Thus, the past tense *-ed* in English, for example, is considered productive even though the realization of past tense includes irregular and suppletive forms. In contrast to productive inflectional morphology such as tense, derivational suffixation is said to be idiosyncratic.

(3) a. presidential vs. *precedent(i)-al
b. institutional vs. *pollution-al
c. exploration vs. * incitation

Derivation is also known to be able to change the category of a stem, leading to the characterization of derivation as word formation. Inflection never does so (Beard 1998; Stump 1998). All the suffixes in (2) change the category of the stem: from noun to verb (2a), from verb to noun (2b), and from noun to adjective (2c). The verbal morphemes of tense and agreement and a nominal morpheme like plural *-s* never evince this kind of category change.

Perhaps related is a fourth criterion: derivation is said to change the meaning of the stem, while inflection does not. Again, each example of suffixation in (2)

entails a change of meaning. Though some semantic change may seem more pronounced than others, the change is decidedly more significant than the examples of inflection we have seen, viz. past tense, agreement and plural.

A final criterion often cited to distinguish the two types of morphemes is to do with proximity of the affix to the stem. Derivation is said to occur closer to the stem than inflection, an observation that dates back at least to Greenberg with his Universal Number 28 (Greenberg 1963: 93). This follows naturally from a theory which posits derivation to be a pre-syntactic lexical process. Accordingly, derivational morphemes, which take part in some word formation process, will occur closer to the stem than inflectional morphemes, which are determined by syntax. Though English is relatively impoverished in terms of morphology, it is still possible to see examples of derivation occurring 'inside' inflection.

(4) a. act-or-s
b. weather-ize-d/s

A summary of the five criteria typically used to distinguish between derivation and inflection is given in Table 1.

	Inflection	**Derivation**
Relevant to syntax	Yes	No
Productive	Yes	No
Can change category	No	Yes
Changes meaning	No	Yes
Position relative to stem	closes off stem	adjacent

Table 1: Criteria to distinguish inflection and derivation

3.1.2 Three categories of morphemes

By Emonds' theory, morphemes are listed in the lexicon and enter the syntactic derivation at different points. In this model, then, morphology refers to both grammatical units and syntactic processes. The theory posits three types of features, including syntactically relevant F Features as well as idiosyncratic *f* features. Morphemes with F and *f* features enter the syntax before any derivation.[1] A morpheme that has cognitive F Features, but no *f* features, by contrast can be inserted in the syntax itself. The third possibility is a morpheme with neither *f* features nor

[1] This first category of lexical item also includes items which have only *f* features, and no F Features, for example: *ouch, yes, gosh, bravo,* etc.

with any F Features that are interpreted at LF. These are post-syntactic and enter the derivation at PF.

One question that naturally arises is the motivation for lexical insertion. The model depends on a general constraint of Economy, which is articulated as the following two principles.

(5) Economy of Representation (Economy at the Dictionary Interface)
Structural requirements such as subcategorization frames are to be satisfied at a level of derivation with as few phrasal nodes as possible.
(Emonds 2000: 231)

(6) Economy of Derivation (Economy at the PF Interface)
Of equivalent deep structures, prefer the derivation of PF containing the fewest insertions of free morphemes. (Emonds 2000: 135)

These two principles of economy limit the derivation to as little lexical insertion as possible, both pre-derivationally and in the subsequent derivation, and specifies a preference for bound over free morphemes, where possible. Another way to think about restrictions on lexical insertion is that there are two motivations for lexical insertion, meaning and grammaticality. Morphemes inserted purely for grammaticality correspond to insertion at PF. Those inserted purely for meaning instantiate pre-syntactic insertion. Unique to this theory is the existence of a third category: morphemes that instantiate cognitive Features such as [PROPERTY], [ACTIVITY], and [CONCRETE].

Integral to this feature-based characterization of morphology is the interaction between insertion at different levels and syntactic derivation. This was illustrated in Chapter 1 in terms of the *-ing* suffix in English. With result nominals, *-ing* was analyzed as inserted pre-derivationally; the *-ing* of event nominals enters the syntax later in derivation; and the *-ing* of gerunds was presented as PF insertion. A second example of multi-level insertion having syntactic effects is passive *-en.* Emonds argues that when *-en* is inserted in the syntax, it gives rise to so-called adjectival passives because the adjectival *-en* suffix changes the verb to an adjective within the syntactic component. Late PF insertion of *-en*, by contrast, characterizes verbal passives which maintain their verbal properties until spell out. (See Emonds 2000: Chapter 5 for full analysis.)

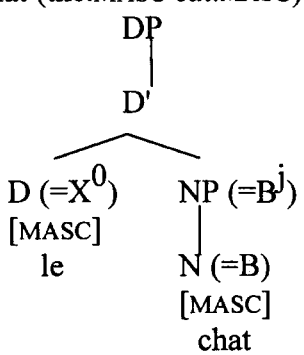
Returning to the traditional derivation/inflection divide, these three levels span the two traditional notions. The third, post-syntactic level of lexical insertion

corresponds to what has traditionally been known as inflection. As PF insertion, it does not instantiate any word formation in the sense of change in meaning. Moreover, as a late derivational process, it will close off the stem. The PF insertion of Alternatively Realized morphemes can be seen as a reflex of syntax as the actual form of those morphemes is determined by the properties of other elements in the string. The definition of Alternative Realization, given in Chapter 1, is repeated here.

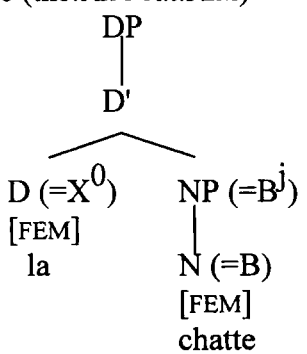
(7) Alternative Realization
A syntactic feature F canonically associated in UG with category B can be alternatively realized in a closed class grammatical morpheme under X^0, provided X^0 is the lexical head of a sister of B^j.
(Emonds 2000: 125)

'Category B', referred to in (7) represents some functional category such as I or D while X^0 is the head of a sister of any projection of B (non-maximal B' or maximal BP). The following example shows the Alternative Realization of agreement features in French.

(i) a. le chat (the.MASC cat.MASC)



b. la chatte (the.FEM cat.FEM)



In this way, morphemes such as agreement morphemes are determined by syntax, instead of somehow determining syntax.[2]

Morphemes that have traditionally been considered derivational, by contrast, correspond to pre-transformational insertion as well as insertion in the syntax, according to the characterization by Emonds. When a bound element combines with Dictionary items pre-derivationally or in the syntax, this results in a process of word formation. Yet by this model, morphemes that are inserted in the syntax are distinct from those inserted pre-derivationally in terms of feature content. Those inserted before syntax can carry *f* features while morphemes inserted in the syntax do not.

[2] See Fender, Marsden, Van Espen and Whong-Barr (2002) for a crosslinguistic analysis of agreement as Alternative Realization.

The intuition is that this difference accounts for the difference in productivity. Affixation of morphemes with cognitive Features can be productive because these Features have specified and limited meaning. Morphemes with *f* features, by contrast have unsystematic idiosyncratic meaning. This lack of regularity correlates with the idiosyncratic specification of hosts with which non-productive derivational morphemes can combine. The example given in (3) above shows that *-al* combines with only a subset of lexical roots to create a licit adjectival form. This constrasts with other instances in which word formation occurs in the syntax with derivational morphemes that can be productively affixed. This is the case with the event nominalizing *-ing* suffix discussed in Chapter 1. Another example is the suffix *-er* which can affix to a verb X to mean *one who does X* (e.g. *writer, teacher, player,* etc.).

Since the more 'contentful' morphemes are those that are inserted before syntax, I will reserve the term 'derivational' for pre-syntactic insertion only. To distinguish the second class of morpheme, I will replace Emonds' term 'productive derivation' with the term 'mid-level' morpheme. True to their status between derivation and inflection, such morphemes may appear to have characteristics of both. This observation is made by Emonds who writes, 'certain more productive formations of derivational morphology...confound traditional category distinctions' (2000: 159). We will see this in our discussion of mid-level morphemes later in this chapter.

To summarize, the characteristics of morphemes at each level differ such that they can be divided into three types of morphemes: derivational, mid-level and inflectional. Since there are three categories of morphemes in this model, it only seems reasonable to maintain a three-way distinction. It is worth noting that there is not necessarily a one-to-one correspondence between level and form. For example, though the past tense *-ed* in English is strictly an inflectional morpheme inserted at PF, it shares its phonological form with the adjectival *-ed* suffix. With this example, one could posit a single lexical entry since any Feature content listed in the entry would be disregarded at PF. The question is less straightforward in other instances, but will be left for further inquiry.[3] In the next section, we explore further the idea that morphemes can enter the derivation at different points, returning again to resultative

[3] For instance the result *-ing*, the event *-ing* and the gerund *-ing* all share a phonological form, but have qualitatively different effects on the syntax. Whether this is one form with one set of Feature specifications or three separate homophonous forms is an open question.

formation in English.

3.1.3 Restriction on English resultative formation: Derived result phrases

In Chapter 2 we considered resultative formation in English, using Emonds' Feature-based approach to address some of the restrictions associated with this structure. Yet, there are examples of possible lexical combinations that satisfy the Feature-based restrictions that would project as a complex predicate, but are illicit as resultatives.

(8) a. The maid scrubbed the pot [AP shiny/*shined/*shining].
b. The jockeys raced the horses [AP sweaty/*sweating].
c. The chef cooked the food [AP black/*blackened/*charred].
d. The joggers ran themselves [AP sweaty/*sweating/*exhausted].
e. The kids laughed themselves [AP sick/*sickened].
f. The chef cooked the kitchen walls [AP black/*blackened].
g. The tourists walked their feet [AP sore/blistery/*blistered].
(Carrier & Randall 1992: 184 (25))

These data suggest that the selection restrictions explored in Chapter 2 are necessary but not sufficient conditions on resultative formation. As noted by Carrier & Randall, (some) deverbal adjectives seem to be barred from resultatives. To explain this they suggest "an aspectual clash between the meaning of resultatives and the meanings of *-ed* and *-ing* adjectives" (p. 184). In this section I ask whether the interaction between the lexicon and the syntax in terms of the insertion of (bound) morphology can help to clarify the problem.

Though Carrier and Randall observe that the illicit result phrases above are 'deverbal,' notice that in their examples some deverbal adjectives are allowed, viz. *shiny* (8a), *sweaty* (8b), *blistery* (8g). One might respond by taking issue with their grammaticality judgments to say that these resultatives are not entirely acceptable. Yet there are other examples of clearly acceptable resultatives containing derived adjectives, indicating that the problem is not merely one of permissive grammars.

(9) a. The conductor on the train shook Devon **awake** once they arrived.
b. The cough syrup made Devon **sleepy** in minutes.

Making use of the notion of multi-level insertion, data showing that certain deverbal adjectives are not allowed in resultatives can perhaps be accounted for if the suffixes in question are examples of late insertion. As noted previously, lexical

selection is considered a pre-syntactic process. If derived lexical items are formed by insertion of derivational morphemes later in syntax, then these items may not be available for selection at deep structure. Thus, it may be that some resultative combinations may not be possible because one or more of its component parts are derived.

Taking (8a) for illustration, the result phrase is comprised of a verbal stem, *shin(e)-* plus an adjectival *-y*, *-ed* or *-ing* morpheme. The verb *shine* is assumed to instantiate the canonical [ACTIVITY] verbal Feature. Assuming a right-hand head rule (Lieber 1983, Williams 1981), the insertion of a bound morpheme bearing a [PROPERTY] would render the lexical item an adjective that projects as an adjectival node. The ability for *shiny* to occur in the resultative, then, suggests that this adjectival suffix is inserted pre-derivationally. In other words, *-y* as a derivational morpheme that carries the canonical adjectival [PROPERTY] Feature is able to satisfy the adjectival part of the subcategorization frame of a verb that selects a complex result argument. The inability for *shined* or *shining* to occur suggests that the morphemes *-ed/-ing* are not inserted pre-derivationally. In other words, if the verb stem alone is available it fails to be selected because it does not satisfy the Feature specification of the selecting verb.

While this proposal may explain these facts, the claim would be bolstered if there were independent evidence for late insertion. One indication that *-ed/-ing* combined with these verbs do not derive adjectives pre-derivationally comes from data involving the adjectival intensifier *very* (10a) and the comparative *more* (10b).

(10) a. * I prefer a very shined/shining car.
b. * I could see that Fred's car was more shined/shining than yesterday.

If these were true adjectives at deep insertion, it is not clear why they could not be modified like other adjectives.

Despite the similar non-adjectival behavior of *shined* and *shining* in (10), however, the two appear to behave differently when used attributively.

(11) a. * Fred's shined car stood out among the heaps of junk in the lot.
b. Fred's shining car stood out among the heaps of junk in the lot.

This suggests that the adjectival *-ing* differs from the adjectival *-ed*. If the former is inserted in the syntax, then it results in a change from a verb to an adjective at a level

in which the syntax can combine them in the attributive adjective – noun order that occurs in English. If, by contrast, the adjectival *-ed* suffix is PF inserted, then throughout syntactic derivation the root *shine* remains a verb. As verbs cannot be projected in an attributive position within DP, the structure in (11a) is ill-formed.

Notice that most of the above derived forms also have non-derived counterparts that satisfy the Feature specification for result phrases pre-derivationally and form licit resultatives. Thus, for instance, it is possible to *cook the food black* but not to *cook the food blackened.* This fact accords with Emonds' Economy of Representation, which restricts lexical insertion if it is possible to construct a structure that is grammatical with fewer morphemes. Since the most economical option is optimal in syntactic derivation, it is not surprising that the non-derived adjective is licit while the lexeme requiring the additional insertion of morphology is not.

In this discussion of deverbal adjectives, we have begun to explore how insertion of bound functional morphemes works in a theory of multi-level insertion. Though we have begun to touch on questions of word formation, many details remain to be worked out. For instance, returning to the examples in (9), the adjectives *awake* and *sleepy* are assumed to be formed pre-derivationally. Whether the suffixes are inserted as separate entities or whether the suffix and stem have become 'lexicalized' to instantiate one lexical item is not apparent. It may be that lexical items with only F features cannot be inserted pre-derivationally and that derived adjectives such as *awake, sleepy* and *shiny* are better analyzed as lexicalized words listed in the lexicon and not as a product of derivation. As this issue does not impact the broader claims made here, however, it will be left without further discussion.

To further explore questions of morphology in this model, we now turn a more morphologically complex language, Korean. In particular, we look at the resultative because unlike English, the Korean resultative includes an obligatory functional morpheme. Moreover, there are data that suggest that lexical insertion at different levels has different ramifications in Korean resultative formation. We begin, however, with a descriptive discussion of the resultative in Korean.

3.2 A description of the resultative in Korean

In comparison with English, Korean is a morphologically rich, agglutinative and head final language. And as noted in Chapter 1, there is a structure in Korean that is analogous to the English resultative in terms of interpretation. In the following

examples, the action expressed by the verb results in the object changing to a new state, expressed as a secondary predicate.[4]

(12) a. Mia-nun ku mwun-ul ppalkah-key chilhay-ss-ta
Mia-TOP the door-ACC red-RES paint-PST-DECL
'Mia painted the door red.'

b. Mia-nun cepsi-lul kkaykkusha-key ssis-ess-ta
Mia-TOP dishes-ACC clean-RES wash-PST-DECL
'Mia washed the dishes clean.'

c. Mia-nun kochwu-lul kop-key ppah-ass-ta
Mia-TOP pepper-ACC fine-RES smash-PST-DECL
'Mia smashed the pepper fine.'

d. Mia-nun meli-lul ppalkah-key mwultuly-ess-ta
Mia-TOP hair-ACC red-RES dye-PST-DECL
'Mia dyed (her) hair red.'

e. Mia-nun kwaca-lul pasakha-key kwu-ess-ta
Mia-TOP cookies-ACC crisp-RES bake-PST-DECL
'Mia baked the cookies crisp.'

(13) a. Thom-un Meyli-ka camtul-key nolayhay-ess-ta
Tom-TOP Mary-NOM sleep-KEY sing-PST-DECL
'Tom sang Mary to sleep.' (Weschler & Noh 2001 (31))

b. Ku swuthalk-tul-un ay-tul-i cameysekkay-key wuletay-ss-ta
the roosters-PL-TOP children-PL-NOM awake-KEY cry-PST-DECL
'The roosters crowed the children awake.'

c. Mia-nun sinpal-i talh-key chwumchwuetay-ss-ta
Mia-TOP shoes-NOM worn-KEY dance-PST-DECL
'Mia danced her shoes thin/worn.'

d. Ku-nun sinpal-i talh-key tally-ess-ta
he-TOP shoes-NOM worn-KEY run-PST-DECL
'He ran his shoes threadbare/worn.' (Kim & Maling 1997: 192 (8))

e. Mia-nun pal-i aphu-key tally-ess-ta
Mia-TOP feet-NOM hurt-KEY run-PST-DECL
'Mia ran her feet hurt/sore.'

Notice that like in English, the Korean resultative can be formed with verbs that are

[4] The Korean data which are not taken from existing literature have been given to me by native speaker informants including Chul-kyu Kim, Hyun-ah Kim, Jeong-Young Kim, Jin-hee Kim, Kyung-jin Min, Chang-won Park and Gihoon Song, to whom I express my gratitude.

normally transitive (12) and those that are intransitive (13).

The set of lexical restrictions on English resultatives discussed in Chapter 2, by contrast, cannot be said to apply to Korean resultatives, as many resultatives that are illicit in English are acceptable in Korean.

(14) a. Mia-nun kuneyuy meli-lul yeppu-key soncilhay-ss-ta
Mia-TOP her hair-ACC pretty-RES fix-PST-DECL
'Mia fixed her hair pretty.'

b. Robin-i soy-lul ttukep-key talkwu-ess-ta
Robin-NOM metal-ACC hot-RES heat-PST-DECL
'Robin heated the metal hot.' (Kim & Maling 1997: 192 (9))

c. Mia-nun chelphan-ul ttwulheci-key naylichye-ss-ta
Mia-TOP metal.plate-ACC dented-RES smash-PST-DECL
'Mia smashed the metal plate dented.'

d. Mia-nun kwuk-ul cca-key kkulhye-ss-ta
Mia-TOP soup-ACC salty-RES boil-PST-DECL
'Mia boiled the soup salty.'

e. Ku hwanan yeyswulka-nun ku kulim-ul phakoytoy-key calla-ss-ta
the angry artist-TOP the picture-ACC destroyed-RES cut-PST-DECL
'The angry artist cut the painting destroyed.'

(15) a. Robin-i paykkop-i ppacki-key wus-ess-ta
Robin-NOM belly-NOM come.out-RES laugh-PST-DECL
Lit = 'Robin laughed his belly out.' (Kim & Maling 1997: 192 (8))

b. Ku-nun ku sonswuken-i cec-key wul-ess-ta
he-TOP the handkerchief-NOM soggy-RES cried-PST-DECL
'He cried the handkerchief soggy.' (Kim 1993: 472 (5))

. c. Ku-nun pay-ka aphu-key mek-ess-ta
he-TOP stomach-NOM hurt-RES eat-PST-DECL
'He ate his stomach sick.' (Kim 1993: 473 (7))

d. Kutul-un kil-ul phyengphyengha-key kkol-ass-ta
they-TOP road-ACC flat-RES level/roll-PST-DECL
'They leveled the road flat.'

e. Chris-nun Mary-ka kkamulachi-key solichi-ess-ta
Chris-TOP Mary-NOM fainted-RES shout-PST-DECL
'Chris shouted Mary fainted.'

In fact, while working with native speaker informants, it seemed that resultative formation in Korean is much freer than in English. It has been possible, however, to

identify some resultatives that are licit in English, but not Korean. The following are the examples I was able to identify.[5]

(16)a * Mia-nun ku dodwuk-ul/-i cwuk-key sswa-ss-ta
Mia-TOP the thief-ACC/-NOM dead-RES shoot-PST-DECL
'Mia shot the thief dead.'

b. * Mia-nun kkoch-ul/-i phyengphyengha-key mwulcwu-ess-ta
Mia-TOP flower-ACC/-NOM flat-RES water-PST-DECL
'Mia watered the flowers flat.'

c. * ku kencok-i sithu-lul/-ka malu-key tol-ass-ta
the dryer-NOM sheets-ACC/-NOM dry-RES spin-PST-DECL
'The dryer spun the sheets dry.'

d. * ttukewun senthak-tul-i nay palpatak-ul/-i mwulcipna-key thaywe-ss-ta
hot coals-PL-NOM my feet.bottom-ACC/-NOM blistered-RES burn-PST-DECL
'The hot coals burned the bottoms of my feet blistered.'

e. * Mia-nun kicekwi-lul/-ka phyengphyengha-key talimcilh-ess-ta
Mia-TOP napkins-ACC/-NOM flat-RES iron-PST-DECL
'Mia ironed the napkins flat.'

f. * Mia-nun pelley-lul/-ka napcakha-key cisnwull-ess-ta
Mia-TOP bug-ACC/-NOM flat-RES squash-PST-DECL
'Mia squashed the bug flat.'

g. * Mia-nun pwuekhpyek-ul/-i kem-key yolihay-ss-ta
Mia-TOP kitchen.walls-ACC/-NOM black-RES cook-PST-DECL
'Mia cooked the kitchen walls black.'

h. * cengswensa-nun wuntongha-lul-ka hamppakcec-key mwuleytamkwe-ss-ta
gardner-TOP sneakers-ACC/-NOM soggy-RES water-PST-DECL
'The gardener watered his sneakers soggy.'

i. * Mia-nun kuneyuy nwun-ul/-i malu-key wul-ess-ta
Mia-TOP her eyes-ACC/-NOM dry-RES cry-PST-DECL
'Mia cried her eyes dry.'

j. * Mia-nun kuneyuy emma-lul/-ka aphu-key kekcengha-ss-ta
Mia-TOP her mother-ACC/-NOM sick-RES worry-PST-DECL
'Mia worried her mother sick.'

k. * Mia-nun elisen-key masy-ess-ta
Mia-TOP stupid-RES drink-PST-DECL
'Mia drank herself stupid.'

[5] I was looking for illicit resultatives in Korean for the purposes of the L2 acquisition experiment which is presented in Chapter 5 of this thesis.

l. * Mia-nun mengchengha-key wus-ess-ta
Mia-TOP silly-RES laugh-PST-DECL
'Mia laughed herself silly.'

Notice that there is a difference between the 'transitive' resultative and the 'intransitive' resultative in terms of case marking. In the former the change-of-state NP is accusative (17), while in the latter it's nominative (18).

(17) Ku-nun soy-**lul** pyengpyengha-**key** chy-ess-ta.
he-TOP metal-**ACC** flat-**RES** pound-PST-DECL
'He pounded the metal flat.' (Kim, 1993:471 (1))

cf. Ku-nun soy-lul chy-ess-ta.
he-TOP metal-ACC pound-PST-DECL
'He pounded the metal.'

(18) Ku-nun ku sonswuken-**i** ces-**key** wul-ess-ta.
he-TOP that handkerchief-**NOM** soggy-**RES** cry-PST-DECL
'He cried the handkerchief soggy.' (Kim 1993:472 (5))

cf. * Ku-nun ku sonswuken-i/-ul wul-ess-ta.
he-TOP that handkerchief-NOM/-ACC cry-PST-DECL
'He cried the handkerchief.'

I will refer to these two types of resultatives as accusative resultatives and nominative resultatives, respectively.

The other crucial difference between English and Korean is the existence of the obligatory *-key* morpheme in the Korean resultative. In the rest of this chapter I show that this morpheme is crucial to the analysis of Korean resultatives. Oddly, however, this morpheme has received little attention in the existing literature. Before giving my analysis of the Korean resultative, I will review that literature.

3.3 The Korean resultative: Previous accounts

3.3.1 Kim (1993)

The discussion of the Korean resultative has focused almost exclusively on the question of its syntactic structure. And in exploring this question, the literature draws heavily from the debate on English resultatives. Kim (1993) argues that the accusative and nominative resultatives in Korean have different structures. Echoing Carrier and Randall (1992), the difference for Kim is evidenced by a difference in the status

between the 'postverbal' NP in the accusative-marked NP, which is argued to be a structural sister of the verb, and the nominative marked NP, which is not. He assigns the accusative-marked resultative a ternary branching VP (19a), while the nominative-marked resultative is said to be biclausal (19b), with an embedded small clause.[6]

(19) a. Accusative-marked resultative: [$_{VP}$ NP [NP VP V]]

b. Nominative-marked resultative: [$_{VP}$ [NP [$_{S}$ NP VP] V]]

His argumentation in support of this proposal consists of the claim that the accusative-marked change-of-state NP is the syntactic object of the verb while the nominative-marked change-of-state NP is the syntactic subject of the result phrase. I will present his arguments because they include interesting data showing syntactic differences between the accusative and nominative resultatives. Though there are differences, I suggest that his claim that the two instantiate different syntactic structure is not well-founded.

To begin with, Kim's claim that the change-of-state NP is the subject of the result phrase in the nominative resultative is inherently problematic as there has never been complete agreement on the syntactic structure of a subject in generative linguistics, nor for the notion of subject as a primitive (McCloskey 1997). But this is a problem for all small clause proponents and not particular to this analysis.

To support his central claim that change-of-state NPs are true objects of the matrix verb in accusative-marked resultatives, Kim presents four tests. Yet, the first two paradigms are, in fact, tests for monoclausal status and not objecthood. The first test involves sentential adverbs, which cannot occur inside an embedded finite clause in Korean (20a). With an accusative-marked resultative, a sentential adverb can precede or follow the postverbal NP (20b).[7]

(20) a. * Tom-i Mary-ka ecey kassta-ko malhayessta.
Tom-NOM Mary-NOM yesterday went-COMP said
'Yesterday, Tom said that Mary went.' (Kim 1993: 472 (6a))

b. (ecey) Tom-un (ecey) John-ul (ecey) nemeci-key milessta.
yesterday Tom-TOP yesterday John-ACC yesterday collapse-RES pushed
'Tom pushed John to collapse yesterday.' (Kim 1993: 472 (6b))

[6] Kim (1993) represents the result phrase in both types of resultative as VPs without any discussion.
[7] Kim (1993) glosses the morpheme *-key* as COMP for complementizer. This is odd since he is arguing that the sentences in (20b) and (21) are monoclausal.

That these data shows the change-of-state NP to be an object is not clear. In fact, the presence of an adjunct between the NP and the verb – not to mention the result phrase – could be used to argue against direct object status.

In his second test, Kim shows that if the change-of-state NP is a pronoun, its subject cannot be its antecedent, again suggesting a single clause.

(21) Tom-un ku-lul nemeci-key milessta.
Tom-TOP he-ACC collapse-RES pushed
Cannot mean: 'Tom pushed *himself* to collapse.' (Kim 1993: 472 (6c))

The third and fourth tests argue more directly for objecthood. As shown in (22), the change-of-state NP is obligatory.

(22) Ku-nun *(ppang-ul) kem-key kwupessta
he-TOP bread-ACC black-RES baked
'He baked the bread black.' (Kim 1993: 472 (6d))

Most convincing of his arguments is the fact that the change-of-state NP can passivize, as shown in the passive counterpart of (22).

(23) ppang-i kem-key kwup-e ci-ess-ta
bread-NOM black-RES baked-L PAS-PST-DECL
'The bread was baked black.' (Kim 1993: 472 (6e))

Unlike the accusative-marked resultative, Kim (1993) shows that the change-of-state NP in the nominative-marked resultative cannot passivize.

(24) a. ku-nun mok-i swi-key oychessta
he-TOP neck-NOM hoarse-RES shouted
'He shouted (his) neck hoarse.' (Kim 1993: 473 (7a))

b. * ku-uy mok-i swi-key oychi ci-essta
he-GEN neck-NOM hoarse-RES shout PAS-PST-DECL
(Kim 1993: 473 (8a))

For Kim, this difference shows that the nominative-marked NP is the subject of the result phrase and not the object of the main verb.

Kim also cites evidence based on the honorific marker that is generally considered to show agreement with subjects and not objects. As shown in (25a), the result phrase can take an honorific marker, reflecting the reflexive which in turn is indexed to the subject, *sensayngnim*, 'teacher.' However, the result phrase cannot bear an honorific marker if the change-of-state NP does not trigger honorific

agreement, e.g. *haksayng*, 'student' in (25b).

(25) a. sensayng-nim-i (casin-uy) wi-ka aphu-**si**-tolok tu-si-ess-ta
teacher-HON-NOM self-GEN stomach-NOM sick-**HON**-COMP eat-HON-PST-DECL
Lit: 'The teacher ate his stomach sick.' (Kim 1993: 474 (10a))

b. sensayng-nim-i haksayng-tul-i wus-(***usi**)-key wu-si-ess-ta
teacher-HON-NOM student-PL-NOM laugh-**HON**-RES cry-HON-PST-DECL
Lit: 'The teacher cried the students laughing.' (Kim 1993: 474 (10b))

The control that the change-of-state NP holds over the result phrase in terms of honorific marking is given as support for the claim that the change-of-state NP is a subject of an embedded clause and not the direct object of the (matrix) verb.[8]

Kim also presents other differences between the two types of resultative. An adverb phrase can intervene between an accusative-marked NP and its result phrase (26a), but it cannot occur between a nominative-marked NP and its result phrase (26b).

(26) a. John-un cha-lul **acwu yelsimhi** nolah-key chilhayessta
John-TOP car-ACC **very intently** yellow-RES painted
'John painted the car yellow very intently.' (Kim 1993: 478 (28))

b.*John-un mok-i **acwu yelsimhi** swi-key nolayhayessta
John-TOP neck-NOM **very intently** hoarse-RES sang

cf. John-un **acwu yelsimhi** mok-i swi-key nolayhayessta
John-TOP **very intently** neck-NOM hoarse-RES sang
'John sang himself hoarse very intently.' (Kim 1993:478 (29))

The inability to separate the result phrase from the change-of-state NP in the nominative variant is also evident in scrambling facts where scrambling of the result phrase away from the nominative-marked NP is ungrammatical (27b) while scrambling of the accusative-marked NP is not (28b).

(27) a. ku-nun **mok-i** **swi-key** oychessta
He-TOP **neck-NOM** **hoarse-RES** shouted
'He shouted his voice hoarse.'

[8] Notice that example (25a) does not include *-key*, but instead contains the particle *-tolok*. Kim makes no mention of this substitution. In his descriptive grammar, Sohn (1999) lists both *-tolok* and *-key* under the very general heading of 'embedded clause enders,' along with twenty other particles. He translates *-tolok* as 'so that, to the point where, until' and *-key* as '(in a way) so that' (p. 239). My informants tell me that a sentence with *-key* implies intention on the part of the agent while *-tolok* does not. The properties of this particle are left for further research.

b. * **swi-key** ku-nun **mok-i** oychessta
hoarse-RES he-TOP **neck-NOM** shouted (Kim 1993: 478 (27))

(28) a. ku -nun **cha-lul** **nolah-key** chilhayessta
He-TOP **car-ACC** **yellow-RES** painted
'He painted the car yellow.'

b. **nolah-key** ku -nun **cha-lul** chilhayessta
yellow-RES he-TOP **car-ACC** painted (Kim 1993: 477 (26))

Based on these differences between the two types of resultative, Kim posits two different structures, a ternary branching VP for the transitive resultative and a biclausal structure for the intransitive. It is clear that there is a difference between two Korean resultatives beyond mere case-marking. Yet to account for this difference by claiming a difference in the structural status of the change-of-state NP is not convincing. Instead, the generalization seems to be that the relationship between the result phrase and the NP cannot be disrupted in the nominative-marked like it can in the accusative variant. This is made especially clear by the passive, adverb and scrambling facts.

In the analysis that I will develop in the next section of this chapter, I will show that the difference between the two resultatives is not one of structure, but depends on the resultative *-key* morpheme instead. It is interesting that this morpheme remains unremarked on by Kim. My analysis is that the resultative *-key* is a morpheme that is inserted at different levels, accounting for the syntactic differences while maintaining a single structure. Before presenting this analysis, however, there are other analyses to consider.

3.3.2 Kim & Maling (1997)

Kim and Maling (1997) (henceforth K&M) acknowledge the resultative *-key* morpheme when they consider it an inflectional element that heads the result predicate and assigns nominative case to its 'subject.' Their claim is that when the change-of-state NP is not selected by the verb, it forms its own 'independent case domain' with the result predicate (1997: 192). In this way, their intuition accords with the above observation that there is a close relationship between the result phrase and the NP in the nominative resultative.

Support for an 'independent case domain' comes from the contrast between

the resultative and a non-resultative with an inalienably possessed object. It is widely known that there is case agreement in Korean between inalienably possessed part NPs and the whole NP to which it belongs. As shown below, the resultative requires nominative case on the change-of-state NP despite its part-whole relationship (29a); this contrasts with the accusative case agreement required in the non-resultative part-whole construction (29b).

(29) a. Sandy-ka koki-**lul** ppye-**ka**/*lul humuleci-key salm-ass-ta
Sandy-NOM meat-**ACC** bone-**NOM**/*ACC gelatinous boil-PST-DECL
'Sandy boiled the meat [until] the bone [became] gelatinous.'

b. Sandy-ka na-**lul** elkwul-**ul**/*i ttayli-ess-ta
Sandy-NOM I-**ACC** face-**ACC**/*NOM beat-PST-DECL
'Sandy beat me on the face.' (K&M 1997: 193 (11))

What is not clear from K&M's work is why change-of-state NPs carry nominative case with some verbs and accusative with others. Unfortunately, accusative-marked resultatives are not discussed at all aside from initial data showing that they exist. Thus, their claim that 'the resultative construction in Korean forms its own case domain distinct from the case domain of the matrix verb' (1997: 193) is limited to nominative-marked resultatives only. In our subsequent discussion we will try to advance the notion of independent case domain for nominative resultatives.

3.3.3 Wechsler and Noh (2001)

The analysis of Wechsler and Noh (2001) (henceforth W&N) is based on a different set of assumptions than those in this thesis. They ground their work in an HPSG framework that explicitly assumes certain semantic structures to be primitives. In their analysis of the resultative, their defining issue is whether the change-of-state NP is a *semantic* argument of the verb or not. Based on an intuited difference in meaning between change-of-state NPs of accusative resultatives, which are seen as semantic arguments, and change-of-state NPs of nominative resultatives, which are not, they posit a difference in structure.

Their analysis of the accusative-marked resultative is to claim that the secondary predicate lacks its own overt subject. The change-of-state NP is selected by the verb but also serves as the subject of the secondary predicate through argument sharing. Like Kim (1993), the structure they suggest for the Korean accusative

resultative is a ternary branching VP, as posited for English transitive resultatives as well.

In their discussion, they give the following data.

(30) a. Mary-nun kumsok-ul napcakha-key twutulki-ess-ta
Mary-TOP metal-ACC flat-COMP hammer-PST-DECL
'Mary hammered the metal flat.'

b. Kim-un meli-lul ccalp-key takk-ass-ta
Kim-TOP hair-ACC short-COMP cut-PST-DECL
'Kim cut hair short.' (sic)

c. Mary-nun thakca-lul kkaykkusha-key takk-ass-ta
Mary-TOP table-ACC clean-COMP wipe-PST-DECL
'Mary wiped the table clean.' (W&N 2001 (30))

Notice that the *-key* morpheme is given the gloss of COMP, for complementizer in their examples. Glossing *-key* as a complementizer is odd, however, since these accusative resultatives are explicity contrasted with nominative resultatives which are said to be biclausal, with the change-of-state NP analyzed as the overt subject of the embedded result clause. The nominative resultatives given by W&N are as follows.

(31) a. Ku-nun sinpal-i talh-key talli-ess-ta
he-TOP shoes-NOM threadbare-COMP run-PST-DECL
'He ran (his) shoes threadbare.'

b. Tom-un pal-i aphu-key talli-ess-ta
Tom-TOP feet-NOM hurt-COMP run-PST-DECL
'Tom ran his feet hurt/sore.'

c. Tom-un pe-ka aphu-key mek-ess-ta
Tom-TOP stomach-NOM hurt-COMP eat-PST-DECL
'Tom ate until his stomach hurt.'

d. Tom-un Mary-ka camtul-key nolayha-yess-ta
Tom-TOP Mary-NOM sleep-COMP sing-PST-DECL
'Tom sang Mary to sleep.' (W&N 2001 (31))

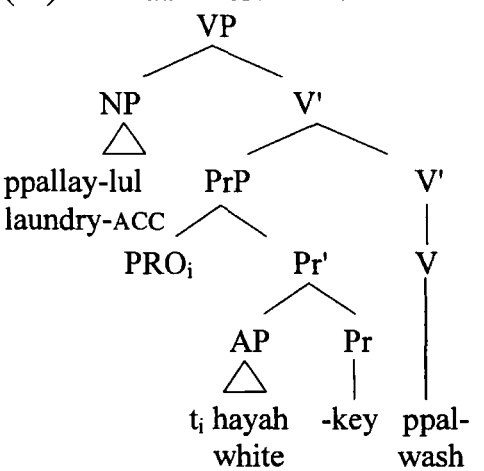
Without discussion, the *-key* of these nominative resultatives is assumed to be a complementizer and to head the CP of the embedded result clause. The reason to posit biclausal structure in nominative resultatives is their 'quasi-predicative sort of interpretation' (W&N 2001: 26). They claim that these resultatives are different from accusative resultatives because there is no argument sharing. Yet this sort of approach is insufficiently formalized to adequately capture the facts. In particular, there is no

mention of the syntactic differences between nominative and accusative resultatives as shown in the scrambling, adverbial and passivization facts; nor is there any argumentation to clarify the status of the resultative *-key* morpheme.

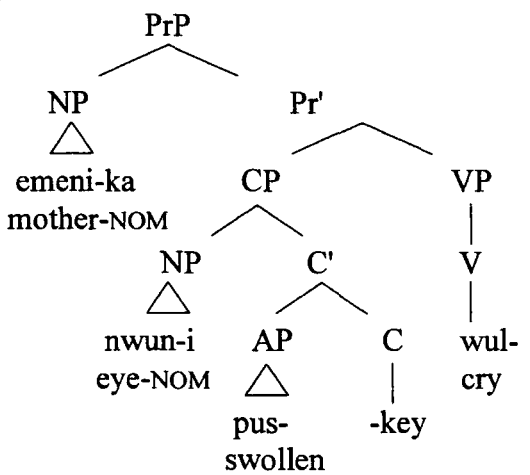
3.3.4 Kang (2001)

Kang (2001) also highlights the differences between nominative and accusative resultatives in order to argue for a difference in structure between the two. She appeals to Bowers' (1993, 1997, 2001) Predicate Phrase structure for accusative resultatives (32),[9] but argues for an embedded CP structure for the nominative resultative (33).[10]

(32) Accusative resultative



(33) Nominative resultative



[9] Following Bowers, the PrP would be analyzed as a sister of V and not an adjunct. I have reproduced the tree as presented by Kang (2001).

[10] The tree structure in (33) is my representation of the bracketed example given by Kang:

[PrP	[DP	emeni-ka]	[Pr' [CP	nwun-i	pus-si-key]	[Pr'	wul-]]]
		mother-NOM		eye-NOM	swollen-HON-COMP		cry

The primary motivation for the difference in structure in this analysis is the ability of honorific marking with the result phrase in the nominative resultative (34), but not with the accusative resultative (35).

(34) a. Wuli-nun halabeci-ka cinaka-**si**-key pikhy-ess-ta
we-TOP grandfather-NOM pass.by-**HON**-RES move.aside-PST-DECL
'We moved aside [so that the] grandfather [could] pass by.'

b. emeni-ka mok-i swi-**si**-key nolaylha-si-ess-ta
mother-NOM throat-NOM hoarse-**HON**-RES sing-HON-PST-DECL
'Mother sang herself hoarse.' (Kang 2001: 437 (25))

(35) emeni-ka son-ul kkaykkusha-***si**-key ssis-si-ess-ta
mother-NOM hand-ACC clean-**HON**-RES wash-HON-PST-DECL
'Mother washed her hands clean.' (Kang 2001: 436 (20))

Assuming that honorific marking is an instance of agreement associated with IP, she takes this as conclusive evidence that the nominative result phrase is a full clause with IP structure while the accusative resultative is not. Without making explicit what one's analysis of honorifics is, it is not entirely clear that honorific marking alone can be considered evidence for full clausal structure. Without independent support for the assumption that honorifics implicate IP, this circular argument is unconvincing.

A second motivation for the difference in structure is the difference in scrambling facts. By this analysis, the PrP maximal projection in the accusative resultative contains the result phrase and a PRO subject. As a constituent, the PrP projection can scramble. In the nominative variant, the whole CP result 'clause' can scramble, but scrambling one element out of the CP is not possible, a conclusion supported by the data. This may offer a neat explanation, but there is a crucial fact that is left unaccounted for by this analysis.

As shown by Kim (1993) above, it is possible to adjoin an adverbial between the change-of-state NP and the result phrase in the accusative resultative, but not the nominative resultative. Kang discusses adverbials, but only in terms of interpretation. She rightly notes that an adverbial must modify the matrix verb and not any part of the result clause. The data she gives is the following.

(36) Suni-ka halucongil mok-i (*halucongil) swi-key nolayha-ess-ta
suni-NOM all.day.long throat-NOM all.day.long hoarse-RES sing-PST-DECL
'Suni sang all day long so that her voice got hoarse.'

According to Kang, the fact that an adverbial cannot occur between the result phrase

and the change-of-state NP suggests that these two phrases comprise a full clause: 'The interpretation of adverbial expressions also supports the presence of the bigger projection, seeing that the main clause adverbials cannot appear within the -key clause' (Kang 2001: 438). Yet this conclusion is far from transparent. Indeed, if the result phrase and the nominative change-of-state NP constitute a full clause, there's no reason why adverbial modifiers should be disallowed, assuming they are pragmatically reasonable. Indeed, such a restriction on adjunction would be stipulative at best.

Kang's use of Bowers' structure accords with the double predication relation that comprises resultatives. Moreover, it may be reasonable to assume that the functional morpheme *-key* of Korean resultatives is an overt instantiation of the head of the Predicate Phrase proposed by Bowers. Yet the idea that there are two structures underlying nominative and accusative resultatives seems to lack motivation. In the next section, I explore the properties of the *-key* morpheme in Korean and present an analysis that is compatible with the syntactic Predicate Phrase structure proposed by Bowers, but appeal to the theory of multi-level insertion to explain the differences between the two resultatives in Korean.

3.4 The Korean resultative morpheme

As mentioned in the previous section, little attention has been given to the morpheme *-key* in the existing literature on the Korean resultative. I begin this discussion with what traditional grammarians have had to say about this morpheme. In fact, *-key* has been attributed with a variety of uses in Korean by traditional grammarians. Firstly, it has been classified it as an adverbializer, deriving adverbs from descriptive verbs.[11]

(37) a. caymi-iss-ta
interest-COP-DECL
'interesting'

b. caymi-iss-**key**
interest-COP-**ADV**
'with interest' (Sohn 1999: 230)

A second usage of *-key* is as a subordinator in what can be analyzed as a control structure.

[11] Descriptive verbs in Korean can be likened to adjectives in other languages functionally. Distributionally, however they pattern like verbs in that they inflect like regular activity verbs when they are the sole main predicate of a sentence.

(38) emeni-nun Mia-eykey sakwa-lul sa-**key** man hay-ss-ta
mother-TOP Mia-DAT apple-ACC buy-CAUS only do-PST-DECL
'Mother caused Mia only to buy apples.' (Sohn 1999: 300)

This second use of *-key* requires co-occurrence with the light verb *hata* 'do' and can be seen as a kind of causative structure; indeed it is referred to in traditional grammar as the long-form causative (Sohn 1999: 377).

The third usage of *-key* that has been noted by traditional grammarians is as a so-called 'conjunctor' meaning 'so that' (Sohn 1999: 239). It is this 'so that' usage that forms the construction that I am calling the resultative. Song is referring to this third usage when he writes, 'I am still unenlightened about how adverbial modification is handled in a simplex sentence in which adverbs describe the result rather than the manner of the action the verb indicates' (1988: 209).

Let us explore the properties of the resultative *-key*, leaving aside, for the moment other non-resultative uses of *-key*. In Whong-Barr (2003) I argued that the behavior of this morpheme confounds the traditional division between derivation and inflection. I will review that argument here, beginning by applying the traditional criteria presented earlier, namely: relevance to syntax, productivity, category change, meaning change and position relative to stem. I show that the three-way division of morphemes better accounts for the properties of *-key* in Korean.

One generalization that emerges is that sometimes *-key* seems different depending on whether it occurs in an accusative or a nominative resultative. With regard to the first criterion, *-key* in the accusative resultative seems irrelevant to syntax. As seen in example (39) the inclusion of *-key* (and the result phrase to which it attaches) does not depend on any other element in the string; it merely leads to a change in meaning, much like the adjunction of an adverbial alters the meaning of a sentence. In the nominative resultative (40), by contrast, the absence of the result phrase (plus *-key*) renders the string ungrammatical. In this way, the occurrence of *-key* in a nominative resultative is relevant to syntax.

(39) a. Sandy-ka kwaca-lul pasakha-key kwu-ess-ta
Sandy-NOM cookies-ACC crisp-RES bake-PST-DECL
'Sandy baked the cookies crisp.' (Kim & Maling 1997: 192 (9))

b. Sandy-ka kwaca-lul kwu-ess-ta
Sandy-NOM cookies-ACC bake-PST-DECL
'Sandy baked the cookies.'

(40) a. Chris-ka palpatak-i talh-key talli-ess-ta
Chris-NOM feet-NOM worn-RES run-PST-DECL
'Chris ran her feet sore threadbare.' (Kim & Maling 1997: 192 (8))

b. * Chris-ka palpatak-i talli-ess-ta
Chris-NOM feet-NOM run-PST-DECL

In terms of productivity, Kim and Maling (1997) claim that it is possible to form the resultative with all types of verbs, giving examples of resultatives in ditransitive (41a), unaccusative (41b) and weather constructions (41c).

(41) a. Robin-i tali-ka hwui-key umsik-ul sang-ey ollyench-ass-ta
Robin-NOM legs-NOM bent-RES food-ACC table-DAT pile/put-PST-DECL
'Robin piled food on the table [so that its] legs [became] bent.'

b. Kil-i cilphenha-key nwum-i nok-ass-ta
road-NOM slushy-RES snow-NOM melt-PST-DECL
'The snow melted the road slushy.'

c. Cipung-i muneci-key pi-ka phepu-ess-ta
roof-NOM down-RES rain-NOM pour-PST-DECL
'It poured the roof down.' (Kim & Maling 1997: 193 (13))

The opposite claim, however, comes from Weschler & Noh (2001), who argue for lack of productivity with resultatives pointing out that there are restrictions on result phrases that can occur in these constructions.

(42) Tom-un kumsok-ul {napcakha/maykkulep/***alumtap**}-key twutulki-ess-ta
Tom-TOP metal-ACC {flat/smooth/**beautiful**}-RES hammer-PST-DECL
'Tom hammered the metal flat/smooth/*beautiful.'
(Weschler & Noh 2001: 415 (49))

Notice, however, that the resultatives in (41) are nominative while that in (42) is accusative. Moreover, productivity in (41) refers to the verb while the lack of productivity in (42) has to do with the result phrase and not the verb. Even though work with informants suggests that resultative formation is more freely generable in Korean than in English, we can see that productivity varies depending on the type of resultative as well as which elements of the construction are in question.

Position relative to the stem is the next criterion often used to classify bound morphemes. One advantage of the multi-level insertion approach is that the issue of morpheme order is epiphenomenal. A bound morpheme suffixed closer to the stem than another is assumed to have entered the derivation sooner. Thus, for instance, pre-

syntactic derivational morphemes are expected to occur before mid-level morphemes which will, in turn, be interior to any inflectional morphemes inserted at PF.

In the above examples of resultatives, *-key* is suffixed adjacent to the stem of the result phrase. Given the agglutinative nature of Korean, the affixation of so-called delimiters to stems is commonly used to determine the relative position of bound morphemes. The data in (43) shows that *-key* must remain adjacent to the stem and cannot be disrupted by the addition of the delimiters *-man*, 'only' and *-to*, 'also'.[12]

(43) a. Ku-nun soy-lul pyengpyengha-***man/to**-key chy-ess-ta.
he-TOP metal-ACC flat-**only/also**-RES pound-PST-DECL

b. Ku-nun ku sonswuken-i ces-***man/to**-key wul-ess-ta.
he-TOP that handkerchief-NOM soggy-**only/also**-RES cry-PST-DECL

Other tests for morpheme order give rise to differences between the nominative and accusative resultative. As we saw earlier, with nominative resultatives, it is possible for an honorific marker (44) to occur between the stem and *-key*.

(44) a. Wuli-nun halabeci-ka cinaka-**si**-key pikhy-ess-ta
we-TOP grandfather-NOM pass.by-**HON**-RES move.aside-PST-DECL
'We moved aside [so that the] grandfather [could] pass by.

b. emeni-ka mok-i swi-**si**-key nolaylha-si-ess-ta
mother-NOM throat-NOM hoarse-**HON**-RES sing-HON-PST-DECL
'Mother sang herself hoarse.' (Kang 2001: 437 (25))

With accusative resultatives, by contrast, honorific marking cannot occur inside the resultative *-key*.

(45) emeni-ka son-ul kkaykkusha-***si**-key ssis-si-ess-ta
mother-NOM hand-ACC clean-**HON**-RES wash-HON-PST-DECL
'Mother washed her hands clean.' (Kang 2001: 436 (20))

Weschler & Noh (2001) give data to show that a causative marker can intervene between the stem and *-key*.

(46) Swuni-nun os-ul kkaykkushay-**ci**-key cec-si-ess-ta
Swuni-TOP cloth-ACC clean-**CAUS**-RES wet-CAUS-PST-DECL
'Swuni soaked the cloth clean.' (Weschler & Noh 2001 (53b))

[12] I thank Jin-Hee Park for the judgments in (43) and the data in (44a).

As for the category status of *-key,* it is not clear whether affixation to an open class lexical item results in a category change. When removed from the context of the resultative, the result phrases in (43a) and (43b), for example, translate into adjectives in English (viz. *flat, soggy*). But in fact, while *pyengpyengha-* 'flat' is an adjective, *ces-* 'soggy' is actually a verb in Korean. We can know it is a verb if it can bear present tense. Adjectives cannot occur with a present tense marker.[13]

(47) pyengpyengha-***nun**-ta
flat-**PRES**-DECL

ces-**nun**-ta
soggy-**PRES**-DECL

Yet with the affixation of *-key* and in the context of the resultative construction, both result phrases are adjectival and not verbal. We can know this because the result phrase cannot bear tense or mood.

(48) a. Ku-nun soy-lul pyengpyengha-key-***ess-*ta** chy-ess-ta.
he-TOP metal-ACC flat-RES-**PST-DECL** pound-PST-DECL

b. Ku-nun ku sonswuken-i ces-key-***ess-*ta** wul-ess-ta.
he-TOP that handkerchief-NOM soggy-RES-**PST-DECL** cry-PST-DECL

As seen in (48), the question of category change is relevant to the choice of result phrase only in terms of whether this phrase is an adjective to begin with or not. It does not seem to vary based on whether it is a nominative or accusative resultative.

It is worth pointing out that in the theory of multi-level insertion, category change is epiphenomenal, as the right-hand head rule is independent of morpheme type. Since category membership depends on the rightmost head, category change will occur at the point of suffixation and only if the suffix is of a different category. Thus, since the result phrases pattern like adjectives, we can consider *-key* to be of the category A. By the right-hand head rule, when it enters the derivation, the whole phrase will be adjectival.

The criteria of meaning change in terms of the resultative *-key* is unclear. I know of no suggestion in the literature that *-key* has any independent meaning. Likewise, my native speaker informants are neither able to attribute any specific meaning to *-key*, nor to discern any difference between the *-key* of accusative resultatives and that of nominative resultatives. Since a morpheme with semantic *f*

[13] The present tense marker is considered the test to distinguish adjectives from verbs in Korean because both classes can carry the past tense markers and mood markers. Adjectives such as *pyengpyengha* 'flat' are also known as descriptive verbs in Korean.

meaning can only be inserted before a derivation begins and there does not seem to be any real world meaning attached to the resultative *-key*, there does not seem any reason to limit it to pre-syntactic insertion.[14]

The traditional criteria distinguishing derivation and inflection as applied to the *-key* of Korean nominative and accusative resultatives are summarized in Table 2.

	Relevant to syntax	**Productive**	**Category change**	**Meaning change**	**Position relative to stem**
Derivation	No	No	Yes	Yes	adjacent
Korean accusative resultative	No	No	Yes/No	??	adjacent
Inflection	Yes	Yes	No	No	closes off
Korean nominative resultative	Yes	Yes	Yes/No	??	??

Table 2 The resultative *-key* and the derivation/inflection distinction

Based on these facts, Whong-Barr (2003) concludes that the resultative morpheme does not pattern exclusively as inflection or derivation. Though the accusative resultative seems to pattern more like derivation, the nominative *-key* patterns more like inflection. Even so, neither categorically patterns like derivation or inflection. The theory of multi-level insertion posits three types of morphology that correspond to differences in behavior when entering the derivation. We explore this theory in terms of the resultative *-key* in the next section.

3.4.1 The resultative *-key* and multi-level insertion

The observations regarding the morpheme *-key* presented above are better understood from an approach in which there are three qualitatively different types of bound morphemes. In this way, the Korean resultative provides a challenge to the traditional derivation/inflection distinction. (See Bochner 1984; Stump 1990; Booij 1993, 1996, among others for more discussion of the problem with the derivation/inflection divide.)

[14] More accurately, such lexical items are inserted at the beginning of a phase/cycle.

As noted above, Kim & Maling's claim that the Korean resultative is productive is disputed by Weschler & Noh (2001), who claim that it depends on the type of resultative. Weschler & Noh argue that an accusative resultative that idiosyncratically disallows certain result phrases will subsequently allow them if the resultative is of the nominative variant. The example of an accusative resultative with selectional restrictions (42) is repeated as (49a). Example (49b) shows that the disallowed result phrase is licit in a nominative variant of (49a).

(49) a. Tom-un kumsok-**ul** {napcakha/maykkulep/***alumtap**}-key twutulki-ess-ta
Tom-TOP metal-ACC {flat/smooth/**beautiful**}-RES hammer-PST-DECL
'Tom hammered the metal flat/smooth/*beautiful.'

b. Tom-un kumsok-ul ticain-**i** **alumtap**-key twutulki-ess-ta
Tom-TOP metal-ACC designs-**NOM** **beautiful**-RES hammer-PST-DECL
'Tom hammered the metal [so that the] designs [on the metal were] beautiful.'
(Weschler & Noh 2001: 415 (49))

From this, it seems that accusative-marked resultatives are less productive than their nominative-marked counterparts. Recall that in Emonds' lexical model, non-productivity distinguishes (idiosyncratic) pre-syntactic lexical insertion from (regular) mid-level insertion. Thus, that *-key* in the accusative variant is less productive than *-key* in the nominative variant might suggest that the former is derivational (i.e. pre-syntactic) while the latter is a mid-level morpheme.

Though this suggestion will be modified shortly, the general claim that *-key* enters the derivation at two distinct levels finds support in the syntactic differences between nominative and accusative resultatives that were first pointed out by Kim (1993). As shown earlier, accusative resultatives allow adverb adjunction, scrambling and passivization, but the nominative resultatives do not. Those data are reproduced here.

Adverbial adjunction

Accusative Resultative

(50) a. John-un cha-lul **acwu yelsimhi** nolah-key chilhayessta
John-TOP car-ACC **very intently** yellow-RES painted
'John painted the car yellow very intently.' (Kim 1993: 478 (28))

Nominative Resultative

b.*John-un mok-i **acwu yelsimhi** swi-key nolayhayessta
John-TOP neck-NOM **very intently** hoarse-RES sang

cf. John-un **acwu yelsimhi** mok-i swi-key nolayhayessta
John-TOP **very intently** neck-NOM hoarse-RES sang
'John sang himself hoarse very intently.' (Kim 1993: 478 (29))

Scrambling
Accusative Resultative

(51) a. ku -nun **cha-lul** **nolah-key** chilhayessta
He-TOP **car-ACC** **yellow-RES** painted
'He painted the car yellow.'

Nominative Resultative
b. **nolah-key** ku -nun **cha-lul**chilhayessta
yellow-RES he-TOP **car-ACC** painted (Kim 1993: 477 (26))

(52) a. ku-nun **mok-i** **swi-key** oychessta
He-TOP **neck-NOM** **hoarse-RES** shouted
'He shouted his voice hoarse.'

b. * **swi-key** ku-nun **mok-i** oychessta
hoarse-RES he-TOP **neck-NOM** shouted (Kim 1993: 478 (27))

Passive
Accusative Resultative
(53) a. Ku-nun ppang-ul kem-key kwupessta
he-TOP bread-ACC black-RES baked
'He baked the bread black.' (Kim 1993: 472 (6d))

b. ppang-i kem-key kwup-e ci-essta
bread-NOM black-RES baked-L PAS-PST-DECL
'The bread was baked black.' (Kim 1993: 472 (6e))

Nominative Resultative
(54) a. ku-nun moki-i swi-key oychessta
he-TOP neck-NOM hoarse-RES shouted
'He shouted (his) neck hoarse.' (Kim 1993: 473 (7a))

b. * ku-uy moki-i swi-key oychi ci-essta
he-GEN neck-NOM hoarse-RES shout PAS-PST-DECL
(Kim 1993: 473 (8a))

By the theory of multi-level insertion, a morpheme that enters the derivation in the syntax is going have different effects on the derivation than one that is inserted pre- or post-derivationally. Thus perhaps we can look to differences in *-key* to explain the syntactic differences between the two resultatives.

I suggest that when *-key* is inserted as a mid-level morpheme, it has an effect on syntax such that adjunction, scrambling and passivization are disallowed. The *-key*

of accusative resultatives, by contrast, does not seem to affect these syntactic operations, suggesting that it is either an instance of pre-syntactic insertion or PF insertion. I will explore this claim in syntactic terms in the next section.

Before leaving this discussion, however, let us return briefly to the adverbial *-key*, which may be considered equivalent to the English *-ly* (Sohn 1999: 230). Wechsler and Noh (2001) contrast the adverbial use of *-key* with the resultative use. In (55), *-key* can be replaced by the less controversially adverbial morpheme *-i*.

(55) a. John-i ppalu-**key** talin-ta.
John-NOM fast run-DECL
'John runs fast.'

b. John-i ppal-**i** talin-ta.
John-NOM fast-**ADV** run-DECL
'John runs fast. (Weschler & Noh 2001: 412 (39))

By contrast, the *-key* of a resultative construction cannot be similarly replaced.

(56) a. Kim-un cip-ul palkah-**key** chilha-yess-ta
Kim-TOP house-ACC red-**RES** paint-PST-DECL
'Kim painted the house red.' (Weschler & Noh 2001: 413 (45a))

b. * Kim-un cip-ul palkah-**i** chilha-yess-ta
Kim-TOP house-ACC red-**ADV** paint-PST-DECL
(Weschler & Noh 2001:414 (46))

These data suggest a qualitative difference between the adverbial *-key* (55) and the resultative *-key* (56). It may be that this adverbial *-key* instantiates the third level of lexical insertion. It may, perhaps, be analyzed as pre-derivational insertion forming an adverb. The idiosyncratic choice of adverbial *-key* vs. adverbial *-i* supports this perspective. If this assertion holds, this three-way distinction for *-key* may be likened to the three-way distinction between the *-ing* 'nominalizer' in English that was discussed in Chapter 1.

In sum, the Korean resultative facts reinforce the claim that the derivation/inflection distinction is too gross a generalization. I have explored the challenge that the Korean resultative morpheme presents for the traditional divide between derivation and inflection, and suggested that we look instead to the theory of multi-level insertion in which morphemes vary in their level of insertion into a derivation. The data in (50) to (54) showing syntactic differences between nominative and accusative resultatives have been used to argue for a difference in underlying

structure. In the next section I present my proposal, which accounts for the syntax of the Korean resultative without discounting morphology.

3.4.2 The resultative *-key*: Merge at two levels

In this section, I propose that the structure underlying the two types of Korean resultative is the same, and that the differences depend on the level in which the Korean resultative morpheme *-key* enters the derivation. Let me begin by pointing out that though there are differences between accusative resultatives and nominative resultatives, the two share obvious similarities. Beyond the existence of the morpheme *-key*, they also share interpretation. Regardless of whether the change-of-state NP bears nominative or accusative case, the interpretation is that this NP was acted upon in some manner such that it comes to be in a different state. The parallel interpretation suggests that the two resultatives share the same structure. My analysis of this structure is the same as the one I adopted for English resultatives in Chapter 2: a unified structure that adheres to the Single Complement Hypothesis (Larson 1988) and avoids ternary branching.

In the analysis of Korean resultatives, I must also account for the fact that the accusative resultative can undergo passivization, scrambling, and adverb adjunction while the nominative resultative cannot. In this section I show that these differences can be explained if *-key* is analyzed as entering the derivation at two different levels; *-key* merged in the syntax gives rise to nominative-marked change-of-state NPs, while post-syntactic merge of *-key* at PF gives rise to accusative-marked NPs. Furthermore, I suggest that merging *-key* completes a derivational phase, closing off the domain of *-key* to further operations.

We have said that open class items and idiosyncratic or non-productive affixes are limited to merge at "deep structure," i.e. prior to syntactic derivation. This contrasts with productive affixation, which occurs either in the syntax or as post-syntactic PF insertion. Let us turn first to the derivation of nominative-marked resultatives using example (57) for illustration.

(57) Ku-nun ku sonswuken-i ces-key wulessta.
he-TOP that handkerchief-NOM soggy-KEY cried
'He cried the handkerchief soggy.' (Kim 1993: 472 (5))

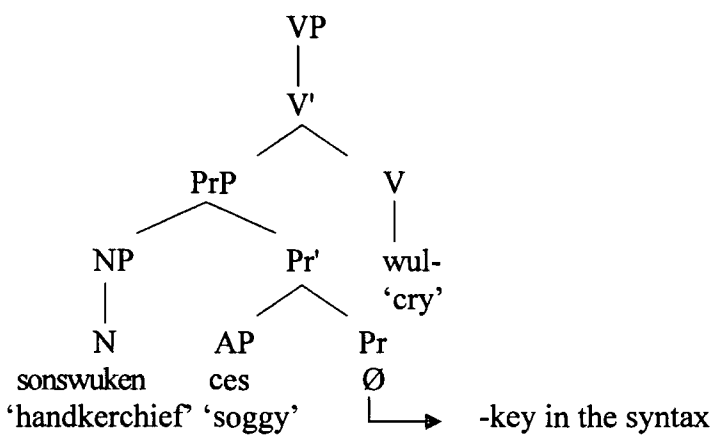
In the numeration the open class lexical items in a sentence like (57) enter the

derivation, viz. *sonswuken* 'handkerchief,' *ces-* 'soggy,' and *wulta* 'to cry.' However, with just the lexical items such a structure would fail because there is nothing to license or case-mark the change-of-state NP *sonswuken* 'handkerchief.' The adjective *ces-* 'soggy' cannot license the NP because APs cannot license internal subjects (Williams 1980); and the verb *wulta* 'to cry' is intransitive, so does not select an internal argument.

It is therefore necessary for a licensor to be merged, and moreover *prior to spell out*, so that the NP can pass the Case Filter. That licensor is the functional head *-key*. The NP is licensed and bears nominative case as Alternative Realization of the features of *-key*. That the realized case is nominative may suggest the category I for the functional projection that houses *-key*. If, however, the Predicate Phrase structure proposed by Bowers is the correct analysis for resultatives, the functional projection may rather carry the label PrP. Accordingly, the structure assigned to a nominative-marked resultative like (57) is the binary branching structure given in (58).

Though Bowers' Predicate Phrase structure is used, his claim that the change-of-state NP moves from [Spec, Pr] to [Spec, VP] in intransitive resultatives does not hold in Korean. The scrambling, adverbial and passive facts suggest that the change-of-state NP and the result phrase comprise a constituent in the same maximal projection, as shown in (58). I will return to this point after presenting the derivation of the accusative resultative.

(58) $[_{XP}$ NP $[_{X'}$ AP X]] V



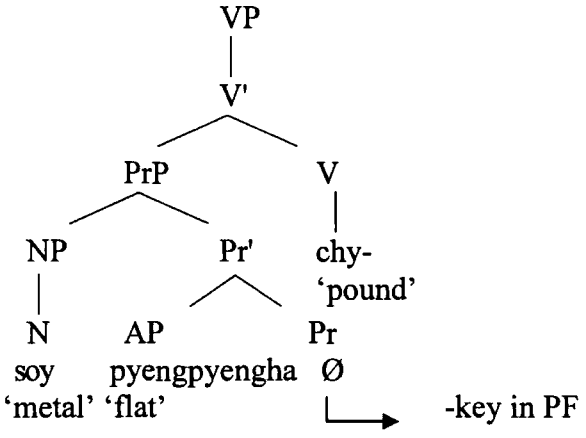
I propose the same structure for accusative-marked resultatives as that proposed for nominative resultatives. Differences arise from the properties of the lexical items chosen in the numeration. The accusative-marked example given by Kim

(1993) is used again as illustration.

(59) Ku-nun soy-lul pyengpyengha-key chyessta.
he-TOP metal-ACC flat-KEY pounded
'He pounded the metal flat.' (Kim 1993: 471 (1))

Like the nominative-marked resultative, the open class lexical items are merged pre-transformationally. The difference, however, lies with the verb *chita* 'to pound,' which is subcategorized for an object, *soy* 'metal.' Thus there is no need for the functional head *-key* in the syntax to license this NP. Accordingly, it is the selecting verb which is able to accusative mark the change-of-state NP. Or, more accurately, the change-of-state NP bears accusative case as Alternative Realization of the features of V at PF. This is in concert with the reasonable assumption that there is an unmarked relation between V's ability to both assign case and select a nominal object. Note that as long as Pr^0 is not filled, the verb is the closest lexical head to the NP because by definition, the lexical head of the phrase is the highest head in that phrase that contains an overt element.[15]

(60) $[_{XP}$ NP $[_{X'}$ AP X]] V



At this point there is no need to insert *-key*. As the closest lexical head, the verb case-marks *soy* 'metal.'[16] The morpheme *-key* is not inserted until after syntax in PF.

One could ask why *-key* is inserted at all since it is not needed to license any argument. The answer lies with the existence of the AP *pyengpyengha* 'flat.' Without the late insertion of *-key,* the head of the functional projection PrP would remain

[15] Recall from Chapter 1 the distinction between a lexical head, which is filled, and a structural head, which may be empty. See Emonds (2000: 128) on this definition.
[16] Whether the change-of-state NP is generated in [Spec, PrP] as in (60) or in [Spec, VP] as a controller of a PRO in [Spec, PrP] as assumed by Bowers (1997), the verb is the closest lexical head and thus an unproblematic case-assigner for this analysis.

empty. The existence of *-key* in the accusative-marked resultative arguably satisfies the requirement of morphological closure in Korean whereby bare predicate stems, both verbal and adjectival, are not allowed (Lee 1993). Thus *-key* is inserted in PF after syntax.

This proposal of a functional projection to house the change-of-state NP and secondary predicate provides an analysis that adheres to the Single Complement Hypothesis (Larson 1988) and avoids ternary branching. The functional projection proposed here is a kind of small clause, and accords with the tradition of linguists who assume that a small clause is some kind of functional projection (see, e.g. Kitagawa 1985; Chung & McCloskey 1987; Contreras 1995; Stowell 1995; McCloskey 1997). What's different is that this 'small clause' has full X' structure with a functional head X^0. And it seems reasonable to accept the independently motivated PrP structure of Bowers (1993, 1997, 2001) as the functional projection, thus lending crosslinguistic support to that analysis.

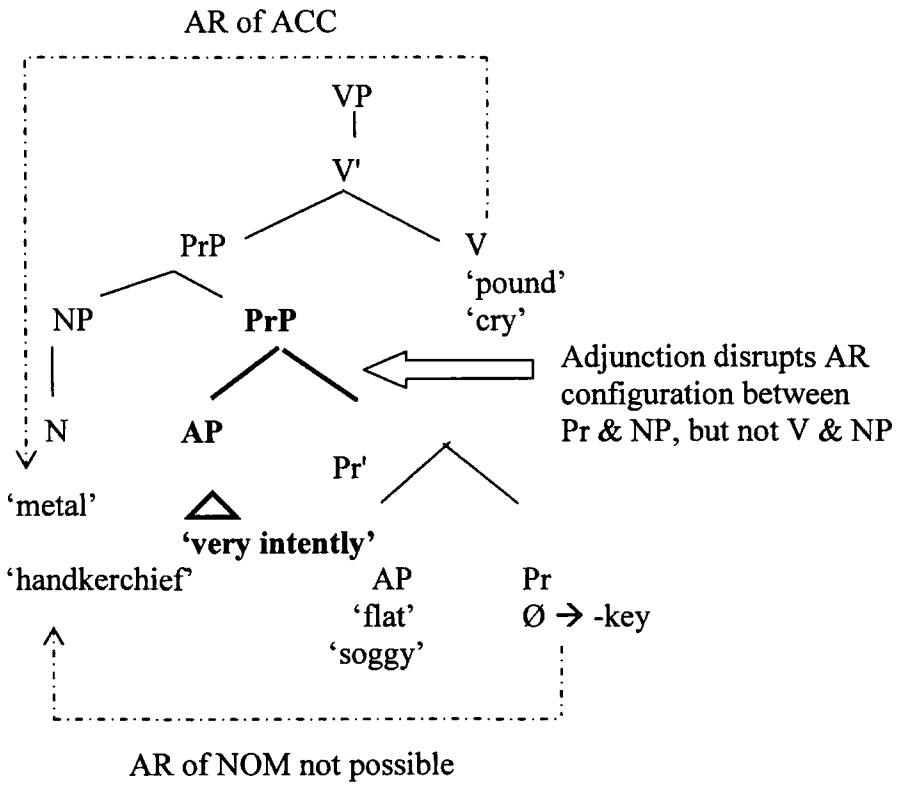
In sum, by this account, nominative- and accusative-marked resultatives share the same structure; differences arise when the resultative morpheme *-key* is inserted at different levels. As noted throughout this chapter, the differences are more than one of case marking. An adverb can intervene between the result phrase and the accusative-marked NP, but not the result phrase and the nominative-marked NP. Moreover, the result phrase of an accusative resultative can scramble, while the result phrase of the nominative resultative cannot. As noted earlier, there seems to be a closer relationship between a nominative-marked NP and its result phrase than the accusative-marked NP and its result phrase. Or, in Kim and Maling's words, the nominative NP and its result phrase seem to form an independent case domain, unlike the accusative NP and its result phrase.

These facts can be explained in terms of the mechanism of case realization outlined above. As mentioned in Chapter 1, morphological case is analyzed as the alternative realization of the features of another category. And, spell out of alternatively realized features occurs after syntax, in PF. Recall further that features can only be alternatively realized in a specific configuration: as the closest head of a sister to a projection of the category in question.

In the nominative-marked resultative (60), the features of Pr, i.e. *-key*, are spelled out on the sister of X', namely the NP in [Spec, PrP]. For this reason, this configuration is necessary for grammaticality. Accordingly, adjunction of an adverbial

phrase within PrP would disrupt this adjacency requirement imposed for the alternative realization of the features of *-key* as nominative case on the change-of-state NP. By contrast this same adjunction would have no effect on the needed relationship between V and the (accusative-marked) change-of-state NP. This is illustrated in the structure shown in (61).

(61)



The explanation of the scrambling facts are parallel. If in nominative resultatives the result phrase scrambles to a position above VP, then at PF where alternative realization of morphological case occurs, the change-of-state NP is no longer the closest head to *-key*. In such a case, the NP is caseless, in violation of the Case Filter, and the derivation crashes.

Somewhat more complex, however, is the accusative variant. It is uncontroversial that in Korean, an accusative-marked object can scramble away from its canonical preverbal position.

(62) a. na-nun ecey san-eyse kkweng-ul cap-ass-ta
I-TOP yesterday mountain-on pheasant-ACC catch-PST-DECL
'I caught a pheasant on the mountain yesterday.'

b. **kkweng-ul** na-nun ecey san-eyse cap-ass-ta
pheasant-ACC I-TOP yesterday mountain-on catch-PST-DECL
(Sohn 1999: 293)

Whatever landing site one wants to assume for the scrambled object in (62b), it will most certainly be beyond the adjacency requirement for alternative realization detailed above.

This problem suggests scrambling to be an operation that occurs in a cycle after case-marking has been satisfied. If so, then scrambling of an accusative-marked NP is not problematic. But if scrambling is an operation that follows case-marking, then why should scrambling of the result phrase be impossible in a nominative-marked resultative?

This conundrum suggests another way to view the differences between the two resultatives: the insertion of *-key* seems to block adverb adjunction, scrambling and passive movement. This blocking is effected with nominative resultatives – where *-key* is inserted in the syntax – but not with accusative resultatives, because *-key* is not inserted until after adverb adjunction and movement would have taken place with accusative resultatives. By this account, that the change-of-state NP comes to bear the features of V as Accusative Case is independent of the late insertion of *-key* in PF. In other words, for nominative resultatives, the insertion of *-key* in the syntax seems to somehow close off the XP to further syntax.

This may be understood in terms of Chomsky's (2001) notion of 'derivational phase' whereby merge of *-key* as a functional head X^0 results in closing off the XP domain. This seems compatible with Chomsky's characterization of a phase as '"propositional": verbal phases with full argument structure and CP with force indicators, but not TP alone or "weak" verbal configurations lacking external arguments' (2001: 12). If this generalization holds, and if Bower's PrP is viable, the functional Predicate head *-key* can be seen as verbal, i.e. having an external argument (the change-of-state NP in [Spec, XP/PrP]) and an internal argument (the result phrase). Once merge of *-key* has occurred, the phase is complete and not subject to further manipulation. With insertion of *-key* in the syntax, this means that further syntax (e.g., scrambling, adverb adjunction, passive movement) is not possible, as noted for nominative resultatives. As long as X^0/Pr^0 remains empty, however, the XP/PrP domain is still open and further syntactic derivation can apply. This cyclic view of morpheme insertion in which merge of *-key* completes the XP/PrP phase is schematized in Table 3.

Derivation →	→	→	→
	Numeration	Syntax	PF
Nominative Resultative	Merge of open class lexical items	Merge of *-key* and AR of *-key* as NOM on change-of-state NP, XP/PrP phase complete	
Accusative Resultative	Merge of open class lexical items	Adverbial adjunction, Scrambling,	Merge of *-key* and AR of V as ACC on change-of-state NP, XP/PrP phase complete
		Passive movement	Merge of *-key* and AR of I as NOM on change-of-state NP, XP/PrP phase complete

Table 3: Cyclic insertion and Korean resultatives

One advantage of this approach is that the passive movement facts stem from the same explanation as the scrambling and adjunction facts.

In sum, the seemingly puzzling facts noted by Kim (1993) can be explained if (i) if the resultative morpheme *-key*, once merged, is analyzed as closing off its domain and if (ii) *-key* is able to be inserted at two distinct levels in the derivation. Returning also to our earlier discussion of morpheme ordering, delimiters would be analyzed as adjunction outside the XP/PrP domain. Merge of *-key* would not affect subsequent adjunction of delimiters outside this maximal projection.

There is one more interesting point that deserves attention before drawing this discussion of Korean resultatives to a close. Though it has not been noted in the literature, data from my informants suggest that there isn't always a one to one correspondence between the transitivity of the verb and whether the change-of-state NP bears nominative or accusative case. In each of the examples below, the change-of-state NP bears nominative case, but the verbs are, by usual assumptions, transitive.[17]

[17] Not all of my informants accept all of these sentences. Some find them marginal while others say that some are ungrammatical and must instead be expressed as a complex verb. For example:

i) Mia-ka yulican-ul ttelettuly-e kkayttuly-ess-ta
Mia-NOM glass-ACC drop-L break-PST-DECL
'Mia broke-dropped the glass.'

(63) a. Mia-nun **ku kay-ka** mengtul-key ttayly-ess-ta
Mia-TOP **the dog-NOM** bruised-RES beat-PST-DECL
'Mia beat the dog bruised.'

cf. Mia-nun *(ku kay-lul) ttayly-ess-ta
Mia-TOP the dog-ACC beat-PST-DECL
'Mia beat *(the dog).

b. Mia-nun **ku mal-i** cichi-key tha-ss-ta
Mia-TOP **the horse-NOM** tired-RES ride-PST-DECL
'Mia rode the horse tired.'

cf. Mia-nun *(ku mal-ul) tha-ss-ta
Mia-TOP the horse-ACC ride-PST-DECL
'Mia rode *(the horse).'

c. Mia-nun **ku umlyoswu-ka** sekki-key hwice-ess-ta
Mia-TOP **the drink-NOM** stirred-RES mix-PST-DECL
'Mia mixed the drink stirred.'

cf. Mia-nun *(ku umlyoswu-lul) hwice-ess-ta
Mia-TOP the drink-ACC mix-PST-DECL
'Mia mixed *(the drink).'

d. Mia-nun **ku yulican-i** kkayeci-key ttelettuly-ess-ta
Mia-TOP **the glass-NOM** broken-RES drop-PST-DECL
'Mia dropped the glass broken.'

cf. Mia-nun *(ku yulican-ul) ttelettuly-ess-ta
Mia-TOP the glass-ACC drop-PST-DECL
'Mia dropped *(the glass).'

These data support the claim that the difference between nominative- and accusative-marked resultatives has to do with the insertion level of *-key* and is not tied directly to the transitivity of the verb. Or perhaps this is somehow connected to the claim by Sohn that "the dichotomy between transitive and intransitive has less syntactic motivation in Korean than in some other languages" (1999: 287).

Additionally, according to my informants it is possible for the change-of-state NPs in (63) to bear accusative case even though they are more natural with nominative case, especially when spoken. Perhaps this can simply be explained if verbs in Korean can select an NP object (giving rise to an accusative resultative) or a PrP (giving rise to a nominative resultative); the variability in (63) may reflect lexical variability at the level of individual grammars.

Another explanation may lie in the nature of the result phrases in (63). As

already noted, the distinction between adjectives and verbs in Korean is not the same as in English. Yet all of the result phrases in (63) can stand alone as matrix verbs (G. Song 2002, p.c.). This contrasts with the result phrases of the invariably accusative resultatives which are considered adjectives in Korean. See (22), (56), (59), for example. In the sentences that allow variable case marking, it is the nominative-marked change-of-state NPs that seem curious. Perhaps the fact that these result phrases are derived from verbs and not adjectives somehow explains the existence of nominative-marked NPs. The exact connection is left for further research.

3.5 Korean Resultative: A regular structural pattern

At the beginning of Chapter 2 I discussed the status of resultatives as 'regular structural patterns', using O'Grady's (1998) Continuity Constraint. Recall that such structure is a chain of heads and licensed dependencies that are formed within the constraints of syntax and that may be subject to lexical restrictions. This notion of structural pattern is expected to apply to Korean resultatives as well. Accordingly, the structure of the Korean resultative, constrained by the syntax of Korean, would consist of a verb final string. Additionally, the overt resultative morpheme, *-key,* as the head of PrP, would be considered part of the construction. Thus the Korean resultative pattern has the following form.

(64) N __-key V

Indeed, if it is the functional morpheme and not the result adjective that is a part of the pattern, this may correlate with the extent to which the Korean resultative is productive, compared to English. The situation is perhaps analogous to the difference between English double object and *to*-dative constructions, which in the last chapter were suggested as being comprised of the following form:

(65) a. double objects : V N N
b. *to*-datives: V N P__

Recall that in *to*-datives (65b), it's the preposition that is part of the construction, not the object of the preposition, which is left open. This was said to correspond to the difference between the more restricted double object and the more productive *to*-dative because with the existence of the preposition, the empty noun slot can be filled with any pragmatically acceptable noun. The Korean resultative can be seen in a

similar light. The inclusion of functional structure in the structure allows for the relatively free insertion of adjectives, and hence, more productive resultative formation than in English.

Yet earlier in this chapter I listed some resultatives that are not licit in Korean (see the examples in (16)). Though this may suggest language-specific lexical restrictions, the account of a structural pattern including the functional morpheme but not particular result phrases endorsed here renders that explanation incompatible. I leave this discussion for further investigation and instead look to my earlier suggestion that certain lexical combinations are more regularly used by a community of speakers, and hence sound more acceptable.

I also suggested that particular lexical items may become fixed and take on idiomatic meaning. It appears that a number of Korean resultatives are idiomatic, much like in English.

(66) a. John-nun tongney-ka ttenaylyeka-key solicilye-ss-ta
John-TOP village-NOM washed.away-RES shout-PST-DECL
'John shouted very loudly.'

b. na-nun ku sori-lul gwi-ey mos-i bakhi-key tul-ess-ta.
I-TOP that talking-ACC ear-LOC nail-NOM driven.in-RES hear-PST-DECL
'I've heard that so many times.'

c. na-nun John-ul ip-i talh-key thail-ess-ta
I-TOP John-ACC mouth-NOM tear-RES admonish-PST-DECL
'I admonished John so many times.'

d. John-un Mary-lul mok-i ppaci-key kitaly-ess-ta
John-TOP Mary-ACC neck-NOM fallen.out-RES wait-PST-DECL
'John waited impatiently for Mary.'

e. John-nun nwunssep-i hwi-key talli-ess-ta
John-TOP eyebrows-NOM flying-RES run-PST-DECL
'John ran very fast.'

f. John-i heri-ka kkunheci-key aphu-ta
John-NOM waist-NOM cut.off-RES painful-DECL
'John has a splitting pain in his stomach.'

g. hanul-i nwun-i pwusi-key phwuru-ta.
sky-NOM eye-NOM dazzle-RES blue-DECL
'The sky is dazzlingly blue.'

h. sensayngnim-i John-ul nwunmwul-i ssok ppaci-key hothongchye-ss-ta.
teacher-NOM John-ACC tear-NOM entirely fallen.out-RES scold-PST-DECL
'The teacher gave John a sharp scolding.'

i. John-nun tung-i hwito-key ilha-ss-ta
John-TOP back-NOM bent-RES work-PST-DECL
'John worked very hard.'

Additionally, some idiomatic resultatives are 'more idiomatic' in that their meaning is less tied to the literal meanings of the words. For instance, the first few examples in (66) are more idiomatic than the last few. Thus, the notion of the resultative as a regular structural pattern seems to apply to resultatives in Korean as well as it did to English resultatives.

3.6 Conclusion

In this chapter I have presented data to show that Korean has two types of resultatives: one with an accusative-marked change-of-state NP that allows movement and adjunction and another in which the change-of-state NP bears nominative case and does not allow movement or adjunction. While these differences have led some to suggest a difference in structure, I have argued that there is a single resultative structure, but a difference in the level of insertion of the Korean resultative morpheme *-key*. When *-key* is merged in the syntax, a nominative resultative obtains; merge of *-key* in PF gives rise to an accusative resultative. Additionally, I have suggested that *-key* may be a functional morpheme that closes off a phase, once inserted.

The discussion of resultatives in this thesis has thus far been limited to questions of syntax and morphology. Broadly speaking, the difference between Korean resultatives and English resultatives is the existence of functional morphology in the former and lexical restrictions in the latter. In the second half of this thesis, I investigate the acquisition of the English resultative by native Korean and Mandarin speakers.[18] In particular I explore whether there will be differences between the Korean and Mandarin learners of English because Korean is the only language of the three to employ a functional morpheme for resultative formation. In other words, I ask what effects the native language transfer of a functional morpheme like the resultative *-key* might have in the second language acquisition of a language like English in which resultative formation does not include any such analogous morpheme. This question arises because there have been claims that there are differences in second language acquisition depending on the type of morpheme, derivational or inflectional.

[18] The Chinese resultative will be discussed in more detail in Chapters 5 and 6.

Moreover, the issue of native language transfer of morphology has received considerable attention in the recent second language acquisition literature. It is to that literature that we turn next.

Chapter 4 L1 Transfer and L2 Development

4.0 Introduction

In the remainder of this thesis, I explore the theoretical claims made in the first half of this thesis in terms of second language acquisition, focusing on the question of native language (L1) transfer in particular. Dating at least back to Lado (1957), the interest in L1 transfer in second language (L2) acquisition has inspired much debate and research. But a derivational view of language raises the question of what it is that transfers in L2 acquisition. Recent models of L2 acquisition have made explicit claims in terms of the initial state. Minimal Trees (Vainikka & Young-Scholten 1996), for instance, limits transfer of L1 to lexical projections (VP and NP) and their internal properties, e.g. head final/initial ordering. This contrasts with the Full Transfer/Full Access model (FT/FA) (Schwartz & Sprouse 1994, 1996) which proposes all of the L1 (minus the actual phonetic matrices) as the initial state.

What neither model states explicitly, however, is what it means to say that 'all of the L1', or 'the VP from the L1' transfers. The assumption is that the set of linguistic principles that exist in the L1 (or within the VP of the L1) will transfer to the Interlanguage (IL). But in the derivational model explored in this thesis, there is an intricate relationship between language principles and the *process* of syntactic derivation. The question I ask is: What are the implications of this kind of derivational model for transfer in L2 acquisition? Can we speak of L1 transfer as a static transfer of a set of principles? Or does the L1 derivational process somehow figure in L1 transfer as well?

To answer this question, I first explore the notion of L1 influence. I then detail a recent attempt to delimit transfer: the modular transfer notion proposed by Montrul (2000). Arguing that this notion lacks theoretical grounding, I subsequently explore the idea of 'transfer of morphology' taking into account the process of syntactic derivation. This is followed by a review of a selection of studies that are relevant to the question of L1 transfer of morphology including the work of Juffs (1998), Slabakova (1997, 2001), White, Brown, Bruhn-Garavito, Chen, Hirakawa and Montrul (1999) and Whong-Barr and Schwartz (2002). These studies are revealing in terms of transfer of argument-structure affecting morphology and contrast with the findings of White (2003a), who builds on the original work of Haznedar and Schwartz

(1997) which argues that difficulty with inflectional morphology by L2 learners does not reflect impairment of the interlanguage grammar.

The aim of this review is to look for empirical grounds for the claim that there are different kinds of morphemes, namely derivational, mid-level and inflectional morphemes. Though the theoretical view of lexical insertion at three levels can be supported, the amount of relevant L2 data is limited. Nevertheless, results from these studies are sufficient enough to suggest that different types of morphemes in the L1 may have different effects in L2 acquisition. The review of the literature provides the background for the proposal that one reason for failure in L2 acquisition may stem from a breakdown of (transferred) derivational processes, thus factoring derivation into the L1 transfer equation. This is the basis of the experimental study that follows, a study of the acquisition of resultatives in L2 English. Hence, I conclude this chapter by presenting the few existing studies that have tested for knowledge of the resultative construction and comment on some of the methodological challenges associated with devising an experiment.

4.1 L1 Transfer

Intuitively, language teachers and learners alike know that the native language figures prominently in the second language acquisition process. Thus, researchers in the field of L2 acquisition must invariably address the question of the role of the L1. While recent discussions of L1 transfer have paid particular attention to the characterization of the initial state in terms of transfer, L1 influence throughout L2 development has not been addressed as explicitly. One reason for this is that by current models, predictions for the initial state can be precise, and, subsequently, confirmed or refuted more definitively by L2 data. For instance, if the initial state is the whole of the L1 grammar, then beginning L2 learners are initially expected to produce/comprehend strings of lexical items from the target language in structures that conform to their native grammar. An initial state confined to the properties of lexical projections, by contrast, predicts an inability to produce/comprehend any target language structure that implicates functional projections.

Predictions for learners at levels of development beyond the initial state are complicated by the fact that they require explicit assumptions about the developmental process – while still taking L1 transfer into account. There is a growing consensus that L2 development is constrained by UG. Particularly persuasive

are studies that show knowledge of poverty of the stimulus effects in L2 acquisition, such as Dekydspotter, Sprouse, & Anderson (1997), Dekydspotter, Sprouse & Thyre (1998), Kanno (1997, 1998), Slabakova (2002), and Marsden (2003, 2004a, 2004b). How that process occurs is itself an open question, a question made all the more complex when considering the interplay between IL restructuring and L1 transfer. Without an explicit theory of development and transfer, it is difficult to articulate specific hypotheses and expectations.

FT/FA (Schwartz & Sprouse 1996, 2000) is one model that addresses the interaction between the two to some extent. Since, unlike L1 acquisition, the starting point of L2 acquisition is a fully specified grammar, it is expected that there will be situations in which the target language input is insufficient to disconfirm an existing property transferred from the native language. For instance, if with regard to a particular aspect of language, there is a subset-superset relationship between the target and native languages, respectively, there is no positive data that can force a retreat in the IL to the correct subset grammar (White, 1989).[1] This scenario, in which Full Transfer cannot be overridden by Full Access, explicitly addresses the question of the interaction between transfer and development. Yet, it isn't possible to characterize all aspects of language and L1-target language relationships in terms of subset/supersets. Thus, there is room for more discussion about the interaction between transfer and development. The question of IL development is particularly crucial since, understandably, very few empirical studies actually capture learners at the initial state. But without initial state data, researchers may have little choice except to make somewhat vague (and post hoc) claims about L1 effects in the interlanguage data.

A second problem is the question of what transfers. To say that the whole of the L1 transfers leaves open the specific assumptions underlying what characterizes a language. Vague assumptions again run the risk of resulting in vague expectations of some kind of L1 effect. One way to avoid this situation might be to articulate more specifically the particular aspects of language that are assumed to transfer at the initial state. This seems to be the intent of one recent proposal, the Conservation Hypothesis (van de Craats, van Hout & Corver 2002). By specifying aspects of language in more

[1] This claim has led to the conclusion that L2 acquisition depends on negative evidence White (1991). Arguably, however, though negative evidence may affect L2 performance stemming from an extra-linguistic mental structure, it is unable to cause the restructuring of grammar within the language module proper (Schwartz & Gubala-Ryzak 1992; Schwartz 1993).

detail, van de Craats et al. seek to make more specific predictions in terms of L1 influence. These researchers don't speak of *transfer*, but instead characterize the native language as *conserved.* In practice, however, it is not clear that there is a meaningful difference between the terms. Like FT/FA, the Conservation Hypothesis posits the whole of the L1 to transfer/conserve. van de Craats et al. go on to list the aspects of the L1 grammar which are expected to be 'conserved':[2]

(1) syntactic knowledge
knowledge of morphology and morphological realization rules
knowledge of lexical items: formal features and semantic-conceptual values
pragmatic knowledge of information-related grammatical encodings
(van de Craats et al. 2002: 148)

Though a more articulated approach may have more specific predictive power, this kind of approach runs the inevitable risk of becoming inapplicable because of changes in linguistic theory (see Schwartz & Sprouse 2000 for discussion). Another potential problem is that listing aspects of language risks missing some aspect of grammar if one is not comprehensive. Noticeably absent from the list above, for example, is any mention of phonology. Be that as it may, it is entirely appropriate for L2 researchers to try to articulate more specifically what is implicated in transfer. And there is nothing wrong with working within current syntactic theory. Yet such an attempt should be as neutral as possible when it comes to the analysis of specific aspects of linguistic phenomena.

With this in mind, I propose a theoretical stance which can make more specific predictions about IL development as it interacts with L1 transfer, but that is still neutral enough with regard to linguistic theory to weather the constant change that characterizes the field. Specifically, I base my argumentation on the premise that syntax is derivational and I posit the transfer of the derivational process in L2 acquisition. By asking what effect a derivational model of syntax has on L1 transfer, I take FT/FA one step further as I try to elaborate on the interaction between transfer and development; yet I avoid the risk of irrelevancy inherent in a model like the Conservation Hypothesis which depends too heavily on specifics within linguistic theory.

Another attempt to articulate more explicitly what transfers is that of Montrul

[2] I will use the term *transfer* and not *conservation* for the remainder of this thesis as it is the more established term and as the notion of conservation does not add any meaningful contribution, as far as I understand it.

(1997, 2000). She argues that transfer implicates some aspects of the grammar but not others. Specifically, she argues that L1 transfer occurs in the domain of morphology, but not in the domain of argument structure. In this way, she posits a 'modular' view of transfer. In the next section I present Montrul's work in some detail as it is a useful attempt to delimit transfer. In doing so, I contest her view of modular transfer, arguing instead for Full Transfer, but Full Transfer that specifically implicates the whole process of syntactic derivation.

4.2 Against modular transfer

4.2.1 Montrul (1997, 2000): Background

Montrul (1997, 2000) investigated the second language acquisition of the so-called causative/inchoative alternation. This alternation refers to the set of (unaccusative) verbs which can appear in two forms: a transitive form with an agent and theme NP (the causative (2a)) and an intransitive form (the inchoative (2b)) with the argument which underwent change, the theme NP, in subject position.

(2) a. Samantha broke the window. (Causative, transitive)
b. The window broke. (Inchoative, intransitive)

In English, the alternation is characterized by (i) a change in word order and (ii) the absence of the agent NP in the inchoative form. English contrasts with Spanish and Turkish, the other languages investigated by Montrul. Spanish also includes a change in word order and the absence of an agentive argument in the inchoative variant of the alternation. However, the inchoative form differs from English in that there is an additional piece of morphology implicated in this form (3b). This morphological element is the reflexive morpheme *se*. Without *se*, the inchoative form is ungrammatical (3c). The Spanish causative form (3a), by contrast, is like the English causative (2a).

(3) a. María rompió los vasos. (Causative, transitive)
Maria broke the glasses

b. Los vasos **se** rompieron. (Inchoative, intransitive)
the glasses **REFL** broke
'The glasses broke.'

c. *Los vasos rompieron.
the glasses broke (Montrul 1997: 44)

Turkish is different from both Spanish and English. The majority of the causative alternants in Turkish require additional functional morphology (4a). Without the causative morpheme, *-ır*, the sentence is ungrammatical (4c). The inchoative variants of these morphologically marked causatives have an inchoative alternant that does not implicate any functional morphology (4b). Thus, by Montrul's estimation, the Turkish inchoative form with verbs like *bat-* 'sink' is analogous to the English inchoative.

(4) a. Düşman gemi-yi bat-**ır**-mış (Causative)
enemy ship-ACC sink-**CAUS**-PAST
'The enemy sank the ship/made the ship sink.'

b. Gemi bat-mış (Inchoative)
ship sink-PAST
'The ship sank.'

c. *Düşman gemi-yi bat-mış
enemy ship-ACC sink- PAST
'The enemy sank the ship/made the ship sink.' (Montrul 1997: 45)

Not all causatives in Turkish are formed in this way, however. The use of *-ır* seems to depend on the verb in the sentence. Thus, for a second smaller set of verbs, it is the inchoative form that is marked by an overt morphological marker – in this case, the passive morpheme, *-ıl* (5b). Without this morpheme, the sentence is ungrammatical (5c). As shown in (5a), the causative variant of these verbs does not rely on any overt morphological marker. In this way, Turkish is said to compare with Spanish for this subset of verb alternations.

(5) a. Hırsız pencere-yi kır-dı. (Causative)
thief window-ACC break- PAST
'The thief broke the window.'

b. Pencere kır-**ıl**-dı. (Inchoative)
window break-**PASS**- PAST
'The window broke.'

c. *Pencere kır-dı.
window break- PAST (Montrul 1997: 46)

Working within the Full Transfer/Full Access model, Montrul asks whether

there will be Interlanguage differences because of these morphological crosslinguistic differences. Specifically, transfer in the morphological domain would mean that 'errors with the overt or covert, causative or anticausative morphology of alternating verbs will be systematic and will conform to the learners' L1s' (2000: 247). She frames her expectations of errors in terms of a Contrastive Analysis-like perspective of ease and difficulty: ease when two languages are the same with regard to zero/overt morphology and difficulty when there is a mismatch between the L1 and the target language.[3] If, however, the learners from all three language groups exhibit the same patterns of errors regardless of morphological realization with particular verbs, then this will be taken as evidence against transfer at the level of morphology.

Montrul is not interested just in questions of morphology, however. She juxtaposes transfer of morphology with transfer of argument structure, because the morphological differences between these languages are seen to contrast with a perceived similarity in terms of other sets of verbs in English, Spanish and Turkish which do not allow an alternation, occurring only in the transitive/causative form.[4]

Transitive/causative form only:

(6) a. Julia cut the chicken. English

b. *The chicken cut.

(7) a. Julia cortó el pollo. Spanish
'Julia cut the chicken.'

b. *El pollo (se) cortó.

(8) a. Kadın et-i kes-mış. Turkish[5]
Woman eat-ACC cut-PAST
'The woman cut the meat.'

b. *Et kes(-ıl)-mış.
meat cut(-PASS)-PAST. (Montrul 2000: 236)

[3] See Whong-Barr (submitted) for a discussion of L1 Transfer that compares Contrastive Analysis and modular transfer.

[4] The fact that (6b) is grammatical as a so-called middle construction (viz. *Chicken cuts easily*) is not discussed. Moreover, what defines this particular set of verbs is not specified. The verbs that are included in the set labeled 'nonalternating' are: *cut, write, paint, hang up* and *pack* (2000:250). They are listed separately from the unergative verbs shown in (9) - (11) in the above text, and (non-alternating) unaccusative verbs (12) - (14) below.

[5] According to Montrul, the verb in (8a) is unusual in that the sentence is grammatical without the causative morpheme -ır. With the addition of the morpheme, the interpretation is that of an indirect causative, viz. that the woman made someone else cut the meat.

Additionally, Montrul highlights a set of unergative verbs which also occur only in the intransitive/inchoative form in all three languages.

Intransitive/inchoative form only (unergative):[6]

(9) a. The boy cried. English

b. * The dentist cried the boy.

(10) a. El niño lloró. Spanish
'The boy cried.'

b. * El dentista lloró al niño.

(11) a. Çocuk ağla-mış Turkish
child cry-PAST
'The child cried.'

b. * Diş doktoru çocuğ-u ağla-mış
tooth doctor child-ACC cry-PAST (Montrul 2000: 237)

And the three languages have a subset of unaccusative verbs that do not alternate as well, occurring only in the intransitive/inchoative form.

Intransitive/inchoative form only (unaccusative):[7,8]

(12) a. The rabbit disappeared. English
b. * The magician disappeared the rabbit.

(13) a. El conejito desapareció. Spanish
'The little rabbit disappeared.'

b. * El mago desapareció al conejito.

(14) a. Papağan pencere-den kaç-mış Turkish[9]
parrot window-ABL escape-PAST
'The parrot escaped through the window.'

b. * Kiz papağan pencere-den kaç-mış
lady parrot-ACC window-ABL escape-PAST (Montrul 2000: 237)

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[6] In Spanish and Turkish, there are no unergative verbs that require an overt morphological marker.
[7] Montrul cites Maldonado (1988) who points out that for some Spanish verbs in this set the addition of a reflexive clitic gives rise to an aspectual meaning in which "the event contradicts normal expectations" (2000: 238).
[8] It is not possible to add the passive marker to the Turkish sentence in (14a).
[9] It is not clear why Montrul has illustrated the Turkish facts with a different verb, *escape* instead of *disappear*. This is especially curious since she is trying to show equivalence between verbs in each language.

According to Montrul, the L2 learners in her study should not make transitivity errors with non-alternating unaccusatives (12) – (14), unergatives (9) – (11) and other nonalternating verbs (6) - (8) because English, Turkish and Spanish 'converge at this level of representation' (2000: 246). In other words, because these verbs are non-alternating in the three languages investigated, learners should not err in terms of their ability to acquire the analogous verbs in the target languages. 'Nonconvergence with the target languages in this domain' she goes on to write, 'would constitute evidence against transfer' (2000: 246).

Notice that this logic depends on the transfer of the properties of the specific verbs tested, carefully selected because they are equivalent in the three languages in terms of argument structure. This reliance on exact verb analogues is confounded, however, when considering the theoretical framework underpinning her assumptions. Montrul adopts the lexical semantic approach of Rappaport and Levin (1998) in which verbs are made up of semantic primitives and are merged in structural templates at the L-syntax level. As made explicit by Rappaport and Levin, these 'event structure templates' are given by UG (1998: 107). The templates underlying alternants such as the inchoative and the causative are then argued to be linked via some kind of universal rule such that the one alternant is derived from the other.[10] The ability of a particular verb to occur in a particular template is said to be determined on an item-by-item basis, and will vary in language-specific ways (Pinker 1989). The verbs that occur in particular templates can be classified into sets instantiating verbs that do and do not alternate.

Because languages are said to differ in terms of exact membership in verb classes, it is the task of L1 learners to acquire the properties of particular verbs in their native language in order to determine verb class membership. Montrul notes the well-known tendency in the first language acquisition of English for children to overextend the use of verbs to structures not licit in the adult grammar. For instance, children are known to be permissive in terms of the verbs they allow to occur in causative structures. To illustrate, Montrul cites the following examples of overgeneralization by children of 3;1 and 3;7, respectively, from diary studies reported by Lord (1979).

[10] There is debate over whether the causative is derived from the inchoative by the addition of a cause 'event' (see, for example, Pesetsky 1995) or whether the causative form undergoes some kind of detransitivization to derive the inchoative form (Levin & Rappaport 1995).

(15) a. I'm singing him.
b. I'm gonna put the washrag and disappear something under the washrag.

Montrul takes this tendency for overgeneralization as a UG-based developmental stage in (native) language acquisition, considering it one of several known instances of U-shaped development. In terms of the causative/inchoative alternation, this development means that children initially go through a stage in which they produce correct but unanalyzed forms, followed by a stage when they overapply the (innate) rule that links the two templates, before ultimately acquiring the restrictions that determine which verbs actually belong to the class that alternates in the adult grammar. She asks whether L2 learners will go through a stage of overgeneralization similar to that in L1 acquisition. If so, she will take this as evidence that learners are relying on UG-based developmental processes and not L1 transfer in this domain because by transfer, learners should have an IL grammar with verb classes already determined by the L1 – since the verbs tested in her experiment are equivalent in terms of the causative/inchoative alternation. After considering Montrul's results in light of her claims, we will return to this question of individual verbs versus verb classes.

To summarize, as conceptualized by Montrul, the question is the level at which transfer applies. This difference in levels forms the basis of her proposal for a 'modular view' of transfer. The contrast between transfer at the level of argument structure and transfer at the level of morphology are in opposition for Montrul, and specific expectations will differ. If transfer occurs at the level of argument structure, then there should be error-free acquisition of non-alternating constructions because the verbs tested are the same in the relevant languages in terms of whether or not they participate in an alternation. If there is transfer at the level of morphology, on the other hand, differences in the presence of zero/overt morphology in the sentences tested lead Montrul to predict disparate learner responses where there are morphological L1/L2 mismatches.

4.2.2 Montrul (1997, 2000): The Experimental Study

Montrul conducted three sets of studies: an L2 English study, an L2 Spanish study and an L2 Turkish study. The English study had 19 L1 controls, 29 Spanish-speaking learners and 28 Turkish-speaking learners. The Spanish study had 20 L1 controls, 31 English-speaking learners and 19 Turkish-speaking learners. The Turkish

study had 18 L1 controls, 18 English-speaking learners and 24 Spanish-speaking learners. The test subjects were adults (age range: 14-65). For reasons of comparison, all subjects were given a cloze test to determine their L2 proficiency. The resulting proficiency levels are given in Table 1. Notice that in each study there was one language group that was divided into two levels. Additionally, while every study had High-intermediate and Intermediate groups, only the L2 English study had a Low-intermediate group.

<table>
<tr><th></th><th>L2 English study</th><th>L2 Spanish study</th><th>L2 Turkish study</th></tr>
<tr><td rowspan="2">English</td><td rowspan="2">19 Controls</td><td>16 High-intermediate</td><td rowspan="2">18 Intermediate</td></tr>
<tr><td>15 Intermediate</td></tr>
<tr><td rowspan="2">Spanish</td><td>12 High-intermediate</td><td rowspan="2">20 Controls</td><td>10 High-intermediate</td></tr>
<tr><td>17 Intermediate</td><td>14 Intermediate</td></tr>
<tr><td>Turkish</td><td>18 Low-intermediate</td><td>19 Intermediate</td><td>18 Controls</td></tr>
</table>

Table 1: Proficiency levels (adapted from Montrul 2000: 253)

In order to make sure that the subjects knew the verbs that were being tested, they were asked to translate the verbs that were used in the experimental task (at the end of the task). Accuracy rates by each group ranged from 80% to 98% (2000: 253). All responses to test items based on verbs that were not accurately translated were eliminated on an individual basis.

The main task in these studies was a picture judgment task. In this task, subjects were presented with a picture and a pair of sentences to be judged on a scale from -3 (very unnatural) to +3 (very natural).[11] Half of the pictures showed an agent and a resulting situation (e.g. a thief and a broken window) while the other half only showed the resulting situation (e.g. a broken window). The accompanying sentences included, respectively, pairs of transitive sentences (e.g. *The thief broke the window / The thief made the window break*) or pairs of intransitive sentences (e.g. *The window broke / The window got broken*).

[11] Unfortunately the 0 value represented 'unable to decide' (Montrul 1997: 164), but the 0 responses were not included in the results (Montrul 2004, p.c.).

4.2.2.1 Montrul (1997, 2000): Results and claims

Montrul presents several sets of data which she takes as evidence against transfer at the level of argument structure. The first set includes the responses to nonalternating unaccusative verbs (incorrectly) used transitively (e.g. **The magician disappeared the rabbit.*) The bar charts presented in Montrul (2000) are reproduced below.

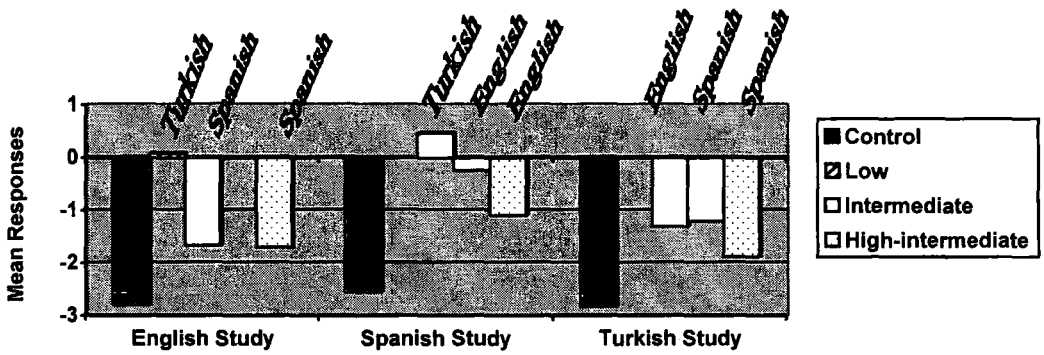

Figure 1: Responses to nonalternating unaccusative forms used transitively[12]
(e.g. **The magician disappeared the rabbit.*) (Montrul 2000: 254)

Montrul sees these results as showing similar patterns across the language groups regardless of L1, as learners of lower proficiency exhibit the same tendency of failing to reject these illicit forms while speakers at more advanced levels know to rule them out. That the less proficient speakers are unable to robustly reject these illicit forms suggests overextension, which Montrul likens to what happens in native language acquisition. She argues that L2 learners do not transfer the argument structure properties of particular verbs at lower levels of proficiency; instead they resort to a 'default template' given by UG, to productively allow verbs in a causative configuration. Thus, Montrul considers these results as evidence against L1 transfer of argument structure and for some kind of UG-based developmental process.

Whenever results are reported as group means, there is the possibility that differences between individual subjects may be obscured. For instance, a near zero group score could mean that all subjects found a set of sentences only marginally acceptable, or that half found them completely natural and half soundly rejected them. Another potential problem with group results like those reported in Montrul (2000) is that it is not possible to know whether subjects responded uniformly to all tokens of

[12] Data for the Spanish Study in Figures 1, 2 and 3 are from Montrul (1999). English and Turkish data are estimated based on bar charts in Montrul (2000) because exact numbers are not given.

each type, or whether there were differences in response to specific test items. Montrul notes the problem of group results in her dissertation, and gives individual results based on an acceptance/rejection criterion of 4 of 5 or 5 of 6 tokens.[13] For this analysis, the actual responses were collapsed such that any positive response was considered an acceptance and any negative response a rejection. The individual results reported by Montrul (1997) for incorrect acceptance of illicit unaccusative forms used transitively are given in the following table.

		L2 English Study	L2 Spanish Study	L2 Turkish Study
Low	Turkish	11 of 18 61%		
Intermediate	Turkish		13 of 19 68.4%	
	English		7 of 15 46.7%	4 of 18 22.2%
	Spanish	2 of 17 11.8%		4 of 14 28.6%
High-Intermediate	English		5 of 16 31.3%	
	Spanish	2 of 12 16.7%		0 of 10 0%

Table 2: Incorrect acceptance by individuals of nonalternating unaccusative forms used transitively (e.g. **The magician disappeared the rabbit.*)

The table shows that 61% of L1 Turkish speakers of low English L2 proficiency accept sentences that are illicit in English even though the analogues are also impossible in their native language. There is some degree of overextension by speakers of intermediate proficiency as well; 68.4% of the Turkish learner of Spanish, for instance accept these illicit forms.

The same claim of overgeneralization is made based on responses to another illicit causative form, this time with unergative verbs (e.g. **The dentist cried the child*). See Figure 2.

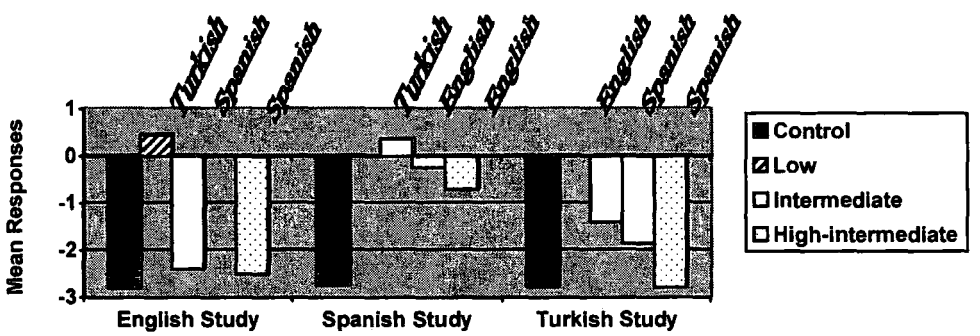

Figure 2: Responses to unergative forms used transitively (Montrul 2000:256) (e.g. **The dentist cried the child.*)

Again, the claim is that responses are equivalent across the three studies and among

[13] There were six tokens of alternating verbs and five of non-alternating verbs (Montrul 1997: 184).

the three language groups: lower level speakers do not rule these forms out. And the individual results shown in Table 3 support the claim that within each study, the lower the level of proficiency, the larger the number of subjects who incorrectly accept these forms.

		L2 English Study	L2 Spanish Study	L2 Turkish Study
Low	Turkish	8 of 18 44.4%		
Intermediate	Turkish		12 of 19 63.2%	
	English		6 of 15 40%	4 of 18 22.2%
	Spanish	1 of 17 5.9%		3 of 14 21.4%
High-Intermediate	English		5 of 16 31.3%	
	Spanish	0 of 12 0%		0 of 10 0%

Table 3: Incorrect acceptance by individuals of unergative forms used transitively (e.g. **The dentist cried the child.*)

So, as with the other set of causatives, because the analogues of these sentences are ungrammatical in all three languages, the uniform trend of initial overtextension is seen as evidence against L1 transfer and subjects of lower proficiency are said to appeal to an innate default template for a wider range of verbs than the target language actually allows.

The third set of data included as evidence against L1 transfer of argument structure consists of transitive verbs presented (incorrectly) in an inchoative form (e.g. **The picture painted*). Montrul wonders whether overextension like that found with illicit causatives will also obtain with illicit inchoatives. The results are given in Figure 3.

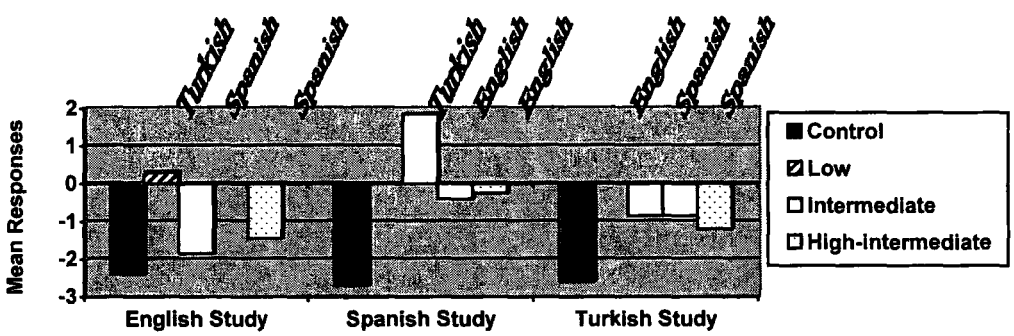

Figure 3: Responses to transitive forms used as inchoatives (Montrul 2000:256) (e.g. **The picture painted.*)

She notes that these results are 'less uniform' than the causative results (2000: 256-257). Specifically, though there is evidence of overextension by the low level Turkish speakers, who do not reject the ungrammatical English inchoatives, the (intermediate)

Spanish speakers do reject these forms. Furthermore, in the L2 Spanish study the intermediate Turkish subjects clearly accept these forms while English speakers of higher Spanish proficiency do not. Montrul characterizes this as a 'clear unexpected L1 effect' (2000: 257). The high acceptance rate by Turkish learners of Spanish is equally pronounced in the individual results; 68.4% of Turks accept these sentences (Table 4).

		L2 English Study	L2 Spanish Study	L2 Turkish Study
Low	Turkish	9 of 18 50%		
Intermediate	Turkish		**13 of 19 68.4%**	
	English		7 of 15 46.7%	5 of 18 27.8%
	Spanish	4 of 17 23.5%		4 of 14 28.6%
High-Intermediate	English		6 of 16 37.5%	
	Spanish	2 of 12 16.7%		1 of 10 10%

Table 4: Incorrect acceptance by individuals of transitive forms used as inchoatives (e.g. **The picture painted.*)

This L1 effect does not constitute evidence against the claim of no transfer at the level of argument structure for Montrul, however, because this transfer occurs at the level of morphology. Recall that the Turkish inchoative implicates overt morphology (for a subset of verbs). The suggestion is that Turkish learners reject the illicit Spanish forms because of the absence of the relevant morphology. Thus, despite these L1-based differences, she maintains the claim that there is no L1 transfer at the level of argument structure.

In sum, Montrul argues that errors in transitivity point to an absence of L1 transfer at the level of argument structure, because learners fail to reject sentences whose analogues would be ungrammatical in their native language. This failure is characterized as overgeneralization, which, according to Montrul, occurs when learners make use of an innate default template, much like children do when they overgeneralize in first language acquisition. So for Montrul, there is no L1 transfer in the domain of argument structure. The L1 is implicated only when there are mismatches between the L1 and target language in terms of morphology. It is this bifurcation of results that leads Montul to argue for a view of transfer as 'modular.' Yet there are reasons to believe that second language acquisition is characterized by an initial state that comprises the whole of the L1 grammar – including argument structure. In the next section I offer a reanalysis of the above results arguing that they, in fact, support a Full Transfer position.

4.2.3 Reanalysis of Montrul's results

4.2.3.1 Input-driven Overgeneralization

There is a degree of overgeneralization among speakers of lower proficiency in Montrul's study in response to illicit causative sentences. Yet overgeneralization does not necessarily mean an absence of L1 transfer. To begin with, none of these subjects are beginners; in fact there is only one set of learners that are deemed to be of low proficiency in all three studies: the Turkish learners in the L2 English study. Thus any argument structure transfer expected at the initial state may not be evident in the results. Beyond this unfortunate though common problem, however, there are other grounds to argue that Full Transfer obtains.

Overgeneralization can be seen to occur at a stage beyond the initial state when learners – of all three languages in the three sets of studies – note differences between their native language and the target language input. If the input indicates that the L1-based interlanguage is not entirely correct in terms of the particular verbs that alternate, then learners may enter a stage in which they discount the properties of individual verb analogues and instead allow alternation more freely, until they learn to restrict particular verbs in the target language. If this can be shown, then the claim that the crosslinguistically uniform trend of overgeneralization constitutes evidence against L1 transfer would dissolve.

Crucial to this reanalysis is the claim that there are argument structure differences among the three languages. As noted earlier, it is widely accepted that languages differ precisely in terms of which verbs belong to particular sets of verbs that do and do not alternate.[14] To use Pinker's terminology, it is the differences in Narrow Range Rules that give rise to cross-linguistic argument structure differences (Pinker 1989). Montrul herself acknowledges this in a footnote when she writes:

> It is true that languages carve semantic space in different ways and that certain argument-structure alternations can have broader or narrower application cross-linguistically. For instance change-of-state verbs as well as verbs of manner of motion (*roll, bounce, move,* etc.) participate in the causative/inchoative alternation in English, whereas the latter (with the exception of *mover* 'move') do not alternate in Spanish.
>
> (Montrul 2000: 268 fn. 13)

[14] See Juffs (1996) for theoretical discussion based on empirical L2 research.

Now, in that same footnote Montrul claims to be free of this complication because she 'specifically chose lexical items with the same syntactic properties in the three languages' (2000: 268 fn. 13). Yet appealing to the properties of specific verbs alone may not suffice. Imagine a learner who has a native language like Spanish that allows *romper* 'break' but not *cortar* 'cut' to alternate. Upon hearing a string such as *Jon ## his arm,* let's assume that the learner knows from context that the verb is equivalent in meaning to *cut* in Spanish and not *break.* The question is, how is this learner then supposed to know whether the verb can appear in the inchoative alternant (16)?

(16) * The arm cuts.

In other words, how does the learner know whether this particular verb in the target language is included in the set that alternates or the set that does not? Is it not precisely the task of the learner to acquire this?

By Full Transfer, a reasonable expectation is that the learner will correctly reject this sentence based on her/his L1, because this particular verb does not alternate in Spanish. This is the initial state expectation. But there is a complication. Presumably, learners are going to receive input at some point that indicates that some verbs which participate in an alternation in the target language do not alternate in their native language. For example, as soon as a Spanish learner of English can parse *The ball bounced,* s/he will realize that there are verbs that alternate in the target language whose analogues do not alternate in the L1.

I suggest that in this situation it is reasonable to expect a stage in second language acquisition when L2 learners are no longer sure which verbs in the target language alternate and which do not, because the input does not match the interlanguage grammar. In other words, input indicating that the analogue of a verb which does not alternate in the L1 does alternate in the target language might push learners to a more permissive grammar, such that they extend the alternation to allow forms that exceed the target input. This would manifest itself as an intermediate developmental stage of overgeneralization in L2 acquisition. And in Montrul's study, evidence of overgeneralization obtains.

This stage of overgeneralization can be seen as compatible with an analysis in which L2 learners appeal to some default template like in native language acquisition, as claimed by Montrul. But the difference is that by my account, this developmental process occurs when the target language input conflicts with the L1-based initial state

grammar. This contrasts with Montrul's reasoning that because there is no transfer of argument structure, L2 learners, like native language learners, have an unspecified initial state (in this domain), and subsequently must determine verb classes based on the input, choosing from the options given by UG. Given the non-beginner status of the subjects, it is not possible to determine which of the two claims is correct. Arguably, however, the claim of modular transfer is objectionable on conceptual grounds, as it is not clear why transfer would implicate all areas of grammar except argument structure. In the absence of compelling evidence to the contrary, the more principled theory is one in which the whole of the grammar transfers.

The view of L2 acquisition of argument structure alternations presented here counters a view of conservative learning – an alternative possibility in L2 development. By conservative learning, the interlanguage of the learner would initially reflect the alternating patterns of the analogous verbs in the native language, but change on a verb-by-verb basis, depending strictly on the target language input. Though this is a logical possibility, it is not supported empirically by Montrul's results as there is a degree of overgeneralization. Moreover, there are other studies that suggest that overgeneralization is typical in the L2 acquisition of argument structure. (See, for example, Inagaki 2001; Whong-Barr & Schwartz 2002.)

To summarize, I argue that L2 acquisition begins with an initial stage in which learners use an L1-based interlanguage to determine verb alternation. Subsequent input indicating argument structure mismatches between the L1 and the target language, however, pushes the learner into a stage of incorrect overgeneralization until the correct L2 rules are acquired. This analysis is supported by the responses of Montrul's learners to illicit causatives. Speakers beyond initial state, of low and intermediate proficiency, show a degree of difficulty in ruling out these illicit causatives, despite their native language. Arguably, these learners have discovered that some verbs alternate in the target grammar but not in their native language, and so they have entered a period of overgeneralization causing them to accept illicit causatives. As they receive more input, however, they eventually retreat from overgeneralization, presumably appealing to the same process that occurs in first language acquisition.

The errors reported in response to the illicit inchoatives do not contradict this analysis, but they also point to another factor in the L2 acquisition of the causative/inchoative alternation: transfer of morphology. In the next section I show

that there is more evidence for transfer of morphology than Montrul suggests, as transfer effects obtain even in the results that Montrul uses to argue against transfer of argument structure.

4.2.3.2 Transfer of morphology

Though Montrul argues against a view of argument structure transfer, she maintains transfer insofar as it implicates morphology. The sets of results she uses to support this claim are different from those discussed above. In addition to causative/inchoative sentences, she also tested periphrastic causatives in English and Spanish (e.g. *The thief made the window break*) as well as *get*-passives in English (e.g. *The window got broken*). She expects, and finds, that speakers whose L1s implicate derivational morphology for a particular construction consistently choose a periphrastic variant over an equally grammatical morphologically unmarked variant across the language groups and in the three sets of studies. Though these results point to a role for morphology in L2 acquisition, they are only suggestive because preference tasks do not indicate what a grammar does not allow. Arguably, transfer of morphology has effects beyond a preference for morphologically complex forms. The results given by Montrul to support her claim against argument structure transfer can also be seen to indicate transfer of morphology. To explore this claim, I will first discuss the illicit causative data discussed in the previous section, and then the inchoative data.

Recall that among the three languages in question, Turkish is the odd one out in that it morphologically marks (most) causative verbs. Both in Spanish and English causative verbs are morphologically simple. Thus, the L2 Turkish study is the only one in which L1 transfer of morphologically complex verbs is not at issue. The results show that the English and Spanish learners respond comparably as they correctly reject these illicit L2 Turkish forms. This can be seen in Figures 1 and 2, given again here.

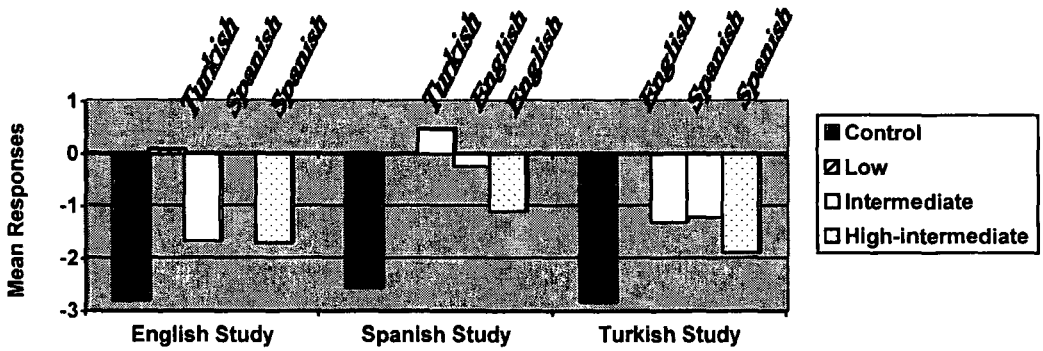

Figure 1: Responses to nonalternating unaccusative forms used transitively (e.g. **The magician disappeared the rabbit.*) (Montrul 2000: 254)

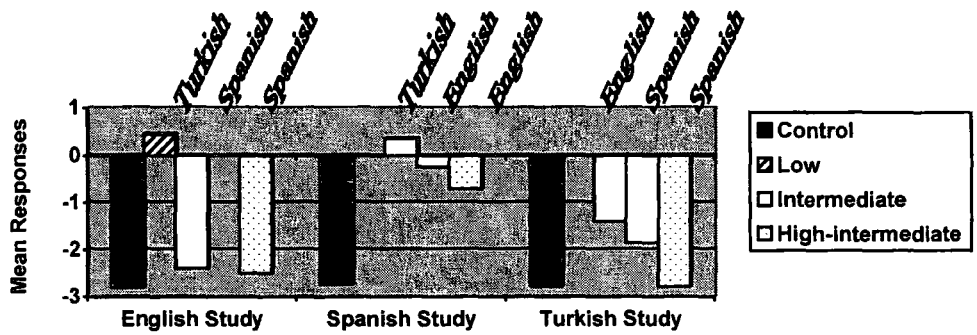

Figure 2: Responses to unergative forms used transitively (Montrul 2000: 256) (e.g. **The dentist cried the child.*)

The results of both the L2 Spanish and L2 English studies also reveal that the least accurate responses on both sets of illicit causatives come from the L1 Turkish speakers. In the previous section I argued that learners may overgeneralize because the argument structure patterns of the target language do not match those of their L1. That the Turks are more inaccurate than the Spanish was attributed to level of proficiency. A second reason for the inaccuracy of the Turks, however, may be the difference in morphology. In Turkish some causatives are morphologically marked, while others are not. When Turkish speakers perceive morphologically simple causatives in the input that contradict their L1-based interlanguage, this may lead them to accept unmarked causatives regardless of the argument structure facts. In other words, if the Turkish speakers have noticed that causatives do not require overt morphology in English and Spanish, they may have a second reason to enter a stage of overgeneralized acceptance of causatives, accounting for the higher levels of overgeneralization found in their results.

The suggestion of transfer of morphology receives more robust support when

reconsidering the responses to the illicit inchoatives among the language groups, shown here in Figure 3 from before.

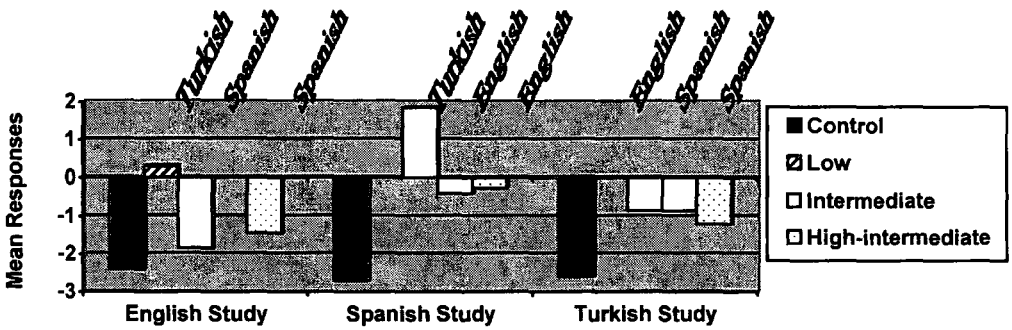

Figure 3: Responses to transitive forms used as inchoatives (Montrul 2000: 256) (e.g. **The picture painted.*)

Keep in mind that Spanish morphologically marks all (licit) inchoative forms overtly; Turkish marks inchoative forms overtly with a subset of verbs; and English never overtly marks such forms. Once again, the differences found in the data correspond to the morphological mismatches in the three languages. In the L2 English study the Spanish, but not the Turks, robustly reject illicit inchoatives. Because all (licit) Spanish inchoative forms require overt morphology, by L1 transfer these Spanish speakers have two reasons to reject these (unmarked) ungrammatical forms in English: the analogous verbs do not allow the inchoative variant in Spanish and the lack of functional morphology renders all inchoatives ungrammatical.

Admittedly, we cannot know from these results alone what the source of these rejections is; yet, the results from the Turkish speakers lend support to the claim that L1 influence is at play. It may be because Turkish allows inchoatives without overt morphology in some instances that half of the Turkish speakers accept these forms in English. Perhaps, just as with causatives, input showing morphologically simple inchoatives causes a tendency to accept these forms because the L1-based IL grammar has been contradicted. Though this suggestion is little more than speculation, it is, at least, too strong to claim as Montrul does that these results 'cannot possibly be attributed to an L1 effect' (2000: 257).

More conclusive support for the claim of L1 transfer comes from responses to these ill-formed inchoative forms in the L2 Spanish study. Examples of the sentences in question are given in (17).

(17) a. * El cuadro se pintó
the picture REFL painted

b. * El cuadro pintó
the picture painted

According to Montrul (2000), the Turkish speakers are different from the English speakers to a statistically significant degree.[15] Montrul (1999) discusses this study in detail, breaking down the illicit inchoative sentences into sentences which included the morpheme *se* and sentences which did not. These results are presented in Table 5 (based on Figure 5 of Montrul 1999: 173).

	*Intransitive with *se* (e.g. **El cuadro se pintó.*)	*Intransitive without *se* (e.g. **El cuadro pintó.*)
Controls	-2.4	-2.75
Turkish Intermediate	**1.85**	**-1.85**
English Intermediate	-1.18	.43
English High-intermediate	-1.47	-.12

Table 5: Responses to ungrammatical inchoatives in Spanish with and without *se*

When the illicit intransitive included the overt marker, *se,* Turkish speakers accepted it (group mean = 1.85). And when there was no marker for these sentences, they were rejected (group mean = -1.85). Though considered unexpected, Montrul (2000) recognizes this as an L1 effect. In short, that the Turkish speakers accept illicit morphologically marked intransitive/inchoative forms suggests reliance on Turkish grammar which allows inchoative forms that are marked morphologically.

English speakers, by contrast, reject the morphologically marked test sentences. Arguably, without any inchoative morphology in English to transfer, these speakers know that these forms are illicit in Spanish just are they are in their L1. Curious, however, is the fact that these English speakers reject illicit inchoatives with *se* at higher rates than illicit inchoatives without *se.* By my estimation, at the initial

[15] There is a discrepancy between data in Montrul (2000) in her Figure 5 (p. 256) which show the Turkish learners *rejecting* these sentences (see my Figure 3) and the discussion in which they are said to be accepted. I therefore rely on Montrul (1999) where this Spanish L2 study is discussed in more detail.

state, English learners of Spanish expect inchoative forms with no overt morphology (like in English). As they begin to hear morphologically marked inchoatives in the input, they begin to restructure their grammar to include a morphological licensor. Thus, illicit unmarked inchoatives ought to be robustly rejected. But this is not what the results show, an outcome that requires explanation.

Until this point, I have suggested that L1 – target language morphological mismatches may be implicated more than Montrul acknowledges. Yet, the results discussed so far cannot definitively support a transfer of morphology view because I have concurrently argued for transfer at the level of argument structure. This problem is most clearly resolved by responses to test sentences i) without morphology in the target language by speakers whose L1 has overt morphology (i.e. a morphological mismatch), when ii) both L1 and target language are the same in terms of which classes of verbs alternate (i.e. argument structure equivalence).

This scenario obtains in the above discussion of illicit L2 English inchoatives (e.g. **The picture painted*) by L1 Spanish speakers. But unfortunately, both the transfer of argument structure and the transfer of morphology predict that Spanish speakers would reject these sentences in English. More illuminating, therefore, are Spanish responses to *licit* English inchoatives (e.g. *The window broke*) which are, of course, not marked morphologically. Fortunately, Montrul also reports data of this type. These are given in Figure 4.

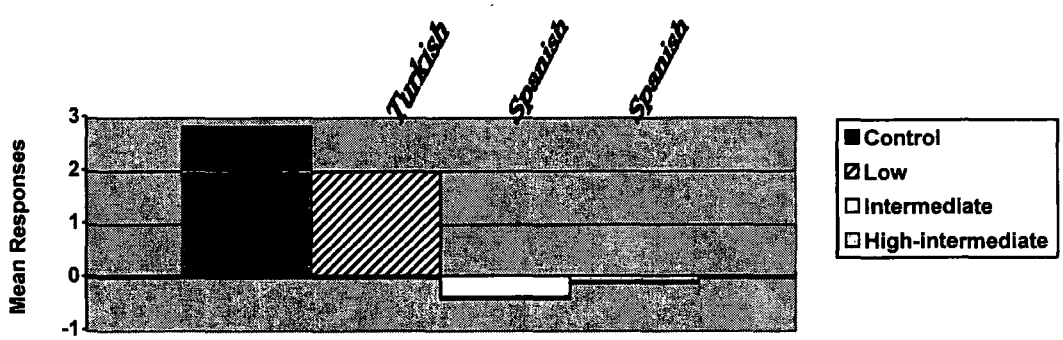

Figure 4: Responses to licit inchoatives in L2 English (Montrul 2000: 258)
(e.g. *The window broke.*)

Notice that the Spanish mean response is negative while the Turkish mean response is positive, a statistically significant difference according to Montrul (2000). And in terms of individual results, Montrul (1997) reports that 9 of the 17 Spanish speakers of intermediate English proficiency (52.9%) and 7 of the 12 L1 Spanish speakers of high-intermediate proficiency (58.3%) reject these grammatical forms,

compared with correct acceptance of these forms by 14 of 18 Turkish speakers of low English proficiency (77.8%). That these sentences are possible with these verbs in all three languages, i.e. they are equivalent in terms of argument structure, suggests that the difference in the role of morphology is the cause of the Spanish rejection of these licit English sentence. This data seems to clearly support a view of L1 transfer – especially since the inaccurate Spanish learners are more proficient than the accurate Turkish speakers. In sum, this result combined with the other more suggestive results provide support for a claim of L1 transfer of morphology even within the sets of results that Montrul discusses only in terms of the question of argument structure transfer.

Having established a clear pattern of transfer with regard to morphology, we turn to Montrul's argument against argument structure transfer. In the next section I will argue against the idea that transfer of argument structure stands in opposition to transfer of morphology. I argue that not only do argument structure and morphology both transfer, but the derivation of a structure also transfers such that there is interaction between argument structure and morphological transfer.

4.2.4 The interaction of transfer and development

In her paper Montrul (2000) claims that there is transfer at the level of morphology, but not at the level of argument structure. I have argued that her results allow us to maintain a Full Transfer position. Throughout her data, differences in responses between language groups have occurred exactly where there are morphological mismatches between the languages. Additionally, I argue that the similarities across language groups reflect a stage of interlanguage development as L1 transfer is supplanted by a developmental process of overgeneralization when the L1-based interlanguage fails to account for the input.

A claim against transfer of argument structure would be better supported by a study that tested sentences that differ from language to language in terms of argument structure while morphological differences are irrelevant. If learners failed to use their L1 argument structure, the claim of no transfer at the level of argument structure would be supported. These data are not possible, however, when considering the causative/inchoative alternation in English, Spanish and Turkish because two of the three languages employ construction-specific morphology in the alternation.

In a sense, it is incorrect to say that there is no L1 transfer even in the

developmental stage of overextension that I have proposed: it is ultimately due to L1 transfer that the learners are uncertain about which verbs alternate in the target language. This distinction is not crucial, however, to my larger claim that transfer of argument structure does not oppose transfer of morphology. To illustrate, consider the inchoative. If the L1-based Interlanguage grammar specifies that these forms require an overt morphological licensor, then an inchoative in the target language that lacks a licensor would be rejected. If, however, a particular inchoative includes a verb that does not allow an intransitive variant in either the native or target language, rejection could be seen as transfer of the argument structure of an analogous verb or transfer of morphology. In this scenario, it isn't possible to tease apart transfer of argument structure from transfer of morphology. Therefore, we need to consider a situation in which the L1 and L2 are the same in terms of argument structure, but different in terms of (construction-specific) morphology. In this scenario it may seem that the expectation of rejection based on transfer contradicts the expectation of overgeneralization expected for developmental reasons. Yet it should not be seen as a contradiction, but instead as an interplay between IL development and transfer.

Before exploring this issue of interplay between transfer and development, however, we need to consider what is meant by 'transfer of morphology'. Throughout her work, Montrul appeals to transfer at the so-called 'level' of morphology. It is unclear how this notion is supported theoretically because Montrul's use of the term 'morphology' is not made explicit. Instead, the discussion turns on a descriptive claim of overt/non-overt realization in particular structures. Moreover, in her surface comparison of languages, she liberally considers construction-specific functional morphology equivalent. For instance, the free morpheme *se*, known as a reflexive element in Spanish, is considered equivalent to the Turkish bound verbal affix *-il* whose primary role is generally that of a passive morpheme. Presumably, in each respective inchoative form, these morphemes are distinct homophones with some kind of 'inchoative' function. Yet this assumption is simply implicit as there is no analysis of these morphemes.

Also problematic is Montrul's use of the term "derivational." Initially, when discussing the language facts, Montrul (2000) speaks of one construction in the alternation as being derived from the other. Without further discussion, however, it is the morphemes themselves, *-il*, *-ir* and *se,* that are subsequently referred to as

derivational. *-il* in Turkish, for instance, is said to act 'as a detransitivizing morpheme by reducing the valency of the predicate and deriving the inchoative form' (2000: 235). The lack of explicit discussion about morphology leaves open the question of what Montrul means when she uses the term *derivational* morphology. As discussed in Chapter 3 of this thesis, it is more reasonable to analyse morphemes into three categories instead of the two-way distinction between derivation and inflection. This more articulated view can affect the way we view Montrul's work.

Based on the theory of morphology developed in this thesis, the descriptive view that L2 learners reject sentences because the form does not match their L1 morphologically can be developed, and the Contrastive Analysis-type understanding of L1 influence based on surface level analysis can be buttressed. By multi-level insertion, a morpheme that affects the syntax is either inserted pre-derivationally or in the syntax.[16] If *se* is seen as a de-transitivizer, it would have to be inserted at deep structure as there is no place in the theory, as currently conceived, for the deletion of an agent argument in the derivation because of the late insertion of a functional element.

With this view of morphology, let us return to my claim that transfer of argument structure is not incompatible with transfer of morphology by considering a Spanish learner of English as an example. Firstly, let us take the Full Transfer position that the English interlanguage is initially based on Spanish. The question, then, is how an English inchoative such as *The window broke* is parsed. Within a derivational model, the lexical items (*window, break*) are inserted pre-derivationally. To make this string grammatical within the Spanish-based interlanguage, however, the functional morpheme, *se,* is required.[17, 18] When no such morpheme is forthcoming, however, the derivation cannot proceed and the string is deemed ungrammatical such that there is rejection of these sentences. And evidence of rejection is exactly the result found by Montrul in response to licit inchoatives sentences (Figure 4 above) in which Spanish speakers – with a high proficiency in English – incorrectly reject sentences which Turkish speakers – who are less proficient – correctly accept.

In short, if one assumes a derivational theory of syntax, morphological transfer

[16] See the discussion of multi-level insertion developed in Chapter 3.
[17] It may be the properties of the morpheme that are inserted in the derivation while the overt realization occurs at PF. The difference is immaterial to the claim made here.
[18] Alternatively, the string could be saved by the insertion of an additional external argument.

does not preclude argument-structure transfer, nor vice versa. With merge of the verb at the start of derivation, the L2 learner will appeal to transferred argument structure. If, however, the derivation of the entire string has a further morphological requirement, then by Full Transfer this requirement will lead to failure, at least initially. In this way morphologically-induced failure does not necessarily rule out argument structure transfer, and a modular account of transfer is no longer tenable.

One remaining question is how this aspect of English can be learned by a Spanish speaker? The options are that either acquisition takes place via a UG-constrained developmental process or learning occurs utilizing general cognitive mechanisms outside the language module. The problem is that if a syntactic derivation relies upon a morphological licensor inserted in the derivation, and that licensor is not forthcoming, then the failure occurs within the derivation. If failure-driven restructuring can occur within the syntax component, then perhaps retreat from overgeneralization can eventually obtain. If restructuring cannot occur when the failure is embedded in a derivation, however, the learner may have to rely on general cognitive reasoning to develop non-modular linguistic knowledge as compensation.

One final possibility to consider is that my sketchy analysis of *se* is incorrect and that *se* is in fact inserted at spell out (i.e. PF inserted). In that case, I suggest that modular linguistic knowledge would be implicated throughout because there would have been nothing to interrupt the derivation causing failure. The syntactic derivation would be interpretable, and therefore the learner could continue to rely on modular linguistic knowledge to parse the string. Though this is pure speculation, there is evidence that native language post-derivational inflectional morphemes do not disrupt second language acquisition. It has been argued that the lack of surface inflection known to characterize nonnative English spontaneous production is due to some kind of mapping problem (Haznedar & Schwartz 1997; Lardiere 1998a, 1998b, 2000; Prévost & White 2000; White 2003a). In other words, it is seen as a superficial failure to supply the required phonetic form and not a reflection of underlying grammar. Before we address the details of missing surface inflection, however, let us conclude the claims of this section.

Montrul has claimed that while there is support for a view of L1 transfer of morphology, there is no transfer of argument structure, and as such contests the claims of Full Transfer. She writes 'if the entirety of the L1 grammar were operative at [the level of argument structure,] no errors should have been observed because the three

languages are alike with respect to the transitivity possibilities for these classes of verbs, and in particular, the lexical items chosen' (2000: 264). I have countered this claim by suggesting that overgeneralization is a developmental process, and developmental processes do not necessarily suffice as evidence against transfer, especially since none of her subjects can be said to have initial state grammars. Moreover, exactly where there are morphological mismatches between languages, there are differences in L2 learners' responses, suggesting L1 transfer. And further, incorrect responses to well-formed English inchoative sentences by Spanish speakers of high English proficiency suggest transfer even in later stages of development. I also addressed the question of transfer of morphology, suggesting that from a derivational view of syntax, transfer of morphology and transfer of argument structure do not stand in opposition, but instead are complementary processes. If this analysis is viable, Montrul's modular view of transfer no longer holds.

4.3 There's morphology and then there's morphology: The missing surface inflections hypothesis

It has long been noticed that L2 learners have considerable difficulty with certain types of bound morphology, as well as free functional elements such as auxiliaries and articles. (See the collection of papers in Beck 1998.) Recently, this observation has received much attention and the inability to supply inflection has now been widely documented (Lardiere 1998a, 1998b, 2000; Prévost & White 2000; White 2003a). White (2003a) notes that there is a general consensus that this difficulty is an area in which learners typically experience fossilization. Moreover, such difficulties seem to persist among learners even at advanced stages of proficiency.

This is certainly evident in the case study of Patty, a Chinese speaker of English, conducted by Lardiere (1998a, 1998b) and has recently been confirmed by White (2003a) in her study of SD, an advanced Turkish speaker of English. In both of these studies there is a degree of failure to supply the third person singular and past tense inflection in obligatory contexts. In her analysis of spontaneous data collected in two sets of sessions 18 months apart, White reports rates of 78% and 81.5% for suppliance of third person singular and 85% and 76% for past tense morphology.

The problem is attributed to a mapping error implicated in production and not to do with underlying grammar, pointing to impaired functional structure. This so-called Missing Surface Inflection Hypothesis is put forward in support of the original

proposal of earlier researchers (Haznedar & Schwartz 1997; Lardiere 1998a, 1998b, 2000). The rationale for this conclusion is the observation that learners who have difficulty supplying these inflectional morphemes are at the same time able to accurately produce other syntactic phenomena which are known to be implicated by the required functional structure.

For example, White shows that SD makes no errors with Case and very few with prodrop. She reports suppliance of overt subjects at rates of 98.5% and 99.4% over the two sets of data and 94% and 93%, respectively for overt objects (2003a: 134-135). This correct suppliance of subjects and objects mirrors findings by Haznedar and Schwartz (1997) for a Turkish child acquiring English and by Ionin and Wexler (2002) for Russian children acquiring English. Additionally, the morphological errors that do occur are consistently found in spontaneous speech. White shows that SD is 100% accurate in her grammaticality judgments of tense and agreement (2003a: 134). These facts suggest the problem is not one of underlying grammar, but instead one of production.

This phenomenon of missing surface inflections is relevant to our discussion of transfer of morphology. To my knowledge, all the data showing failure to supply bound morphology in English involves *inflectional* morphology. This includes third person singular agreement and tense in the verbal domain and plural morphology in the nominal domain. There is no similar claim for morphemes which may be considered mid-level morphemes, as far as I know. With the theory developed in this thesis, we have a theoretical basis from which to address this result. Based on the claim that different types of morphology are qualitatively distinct in terms of Feature content and level of insertion, I suggest that transfer implicating the different types of morphemes may have different effects in second language acquisition.

In considering the growing body of literature supporting the Missing Surface Inflection Hypothesis, I assert that functional morphemes that are purely PF morphemes may remain unexpressed because they are, in a sense, less crucial in the production and comprehension of a syntactic string. This is because they are supplied *after* spell out and as such not necessary for syntactic derivation, nor for interpretation at LF. They are, in this way, a non-essential surface phenomenon and their absence in the utterances of L2 speakers does not reflect underlying syntactic knowledge – a conclusion consistent with the data.

This speculation regarding post-syntactic inflectional morphology contrasts

with the situation involving Syntacticon elements that are required for syntactic derivation. In the experimental study on the acquisition of resultatives presented in the following chapter, I explore the possibility that transfer of functional morphology that is inserted in the syntax may lead to failure in L2 acquisition, and further that this failure may stem from a genuine failure in the interlanguage grammar, not a mapping or production failure common in the realm of inflectional morphology. Any such failure will be attributed to L1 transfer generally, and the transfer of syntactic derivation in target language production/comprehension specifically.

The intuition is that for structures that rely crucially on the mid-level insertion of functional morphemes, if there is no insertion of the morpheme, the derivation cannot proceed, and thus failure ensues. This proposal can be seen as an extension of Full Transfer. Assuming the whole of the L1 to comprise the initial state of L2 acquisition, my contention is that 'the whole of the L1' refers to more than just the static rules that underpin the grammar. The production and comprehension of language also implicates a dynamic process of syntactic derivation. Thus in the context of second language acquisition, if there is a structure that requires the mid-level insertion of functional morphology for a derivation to proceed in the native language, by Full Transfer, the interlanguage is also going to include such a requirement. If there is no analogous morpheme in the target language, however, the derivation cannot proceed resulting in failure in L2 acquisition, at least initially.

The transfer of derivation involving mid-level morphemes finds support in Montrul's study of the acquisition of causative and inchoative structures. Those subjects who face a mismatch between the native language, which implicates functional morphemes for syntactic derivation, and the target language, which does not, were unable to correctly judge the relevant structure in the target language, even at high levels of language proficiency. This result contrasts with the scenario involving inflectional morphology where the data suggests that subjects know the underlying structures, but simply fail to supply the surface morphology. In the latter, lack of suppliance is less critical, however, since inflectional morphology is not inserted until spell out after syntactic derivation – a string is interpretable without insertion of inflection. Mid-level morphology, by contrast is required for the derivation itself to proceed. Failure to supply this type of morphology, then, can lead to a more significant type of failure in L2 acquisition.

Though the results of Montrul's work seem to support this view of transfer

involving syntactically relevant morphology, this interpretation of her results would be bolstered if we could find more evidence in other L2 studies. There is other experimental work involving non-inflectional functional morphology. In the next section we will consider a selection of existing studies to explore the effects of transfer of mid-level morphemes in L2 acquisition.

4.4 Literature review: Transfer of morphology and L2 development

In this section I will discuss four L2 studies. They have been selected because they all test structures that implicate the kind of argument structure phenomena that we have been discussing thus far. In looking at these results, we are interested in evidence of transfer effects stemming from functional morphology implicated in argument structure. One question is whether evidence of transfer can be found at low and high levels of IL development. Additionally, we are interested in asking what effect transfer of morphology will have. We will consider two studies that show that when the L1 contains a functional morpheme that gives rise to a particular interpretation, L2 speakers assign incorrect interpretations to sentences if the target language does not contain an analogous morpheme. The first is a study of psyche verbs and the second investigates telicity. We will also consider two studies which investigate argument structure phenomena that rely on functional morphology for grammaticality in some languages. We will see that there are transfer effects at all stages of development, from early acquisition to more advanced stages.

This leads us to our second line of inquiry, which is whether L1 transfer can be eventually overcome. In other words, we are interested in issues of transfer as well as the path of IL development. If, for instance, speakers initially transfer a requirement for a functional morpheme in the syntactic derivation, what path will the learners take in restructuring their grammar (if indeed they can)? The possibilities for L2 development explored here are i) the grammar cannot be restructured, ii) the learners will employ a conservative input-matching strategy learning lexical combinations on a case-by-case basis, or iii) learners will enter a stage of productive overgeneralization in which syntactic principles are acquired and broadly applied, before eventually acquiring the relevant lexical restrictions. We begin with Juffs (1998), an on-line task conducted with subjects with very advanced levels of L2 English proficiency.

4.4.1 Juffs (1998)

Juffs (1998) investigated whether differences in argument-structure-related morphosyntax in various L1s might manifest themselves in on-line results in L2 English. His on-line experiment was designed to contrast accuracy in grammaticality judgment with reaction time when parsing a sentence. The subjects were at a very advanced level of English proficiency. While we assume transfer effects to be robust at earlier stages of acquisition, it is interesting to see if we can find transfer effects among advanced learners. Arguably, the methodology employed by Juffs offers the opportunity to probe linguistic competence in a way that more traditional work in generative second language acquisition does not. The recording of reaction times as subjects encounter target language data may reveal differences that do not surface from a more traditional task like making grammaticality judgments. A significant difference in reaction times could be seen as stemming from differences in the nature of the underlying linguistic knowledge. In short, this may be a more subtle way to find evidence of L1 transfer among advanced subjects than what we could otherwise detect.

The subjects in this study comprised the following native language groups: 17 Chinese native speakers, 17 Korean/Japanese native speakers, 17 Romance language speakers; and there was a native English control group as well. The first set of test sentences included Garden Path sentences (18a) and non-Garden Path sentences (18b).

(18) a. Before Mary ate the pizza arrived from the local restaurant.
b. After Mary died her husband married a woman from Texas.
(Juffs 1998: 411 (I))

Juffs' assumption was that all language groups would respond comparably to these sentences because there are no differences among the languages in terms of the argument structure of the relevant verbs, nor any differences in theta roles.[19]

A second set of sentences included variants of the causative/inchoative alternation including a causative sentence (19a), an ungrammatical inchoative sentence (with an illicit reflexive in object position) (19b), a licit inchoative (19c) and a periphrastic *make* causative (19d).

[19] Juffs assumes theta role assignment to uniformly abide by universal principles.

(19) a. First of all the cook melted the chocolate on the cake.
b. *First of all the chocolate melted itself on the cake.
c. First of all the chocolate melted slowly on the cake.
d. First of all the cook made the chocolate melt on the cake.
(Juffs 1998: 411 (II))

This alternation was chosen because of the morphosyntactic differences between the languages. As shown with Spanish in the earlier discussion of Montrul's work, Romance languages require a free functional morpheme in inchoative sentences. In this way they are different from Chinese, Japanese/Korean and English.

In terms of causative structure, Romance languages can be equated with English morphologically as causitivity is lexically encoded. And, according to Juffs, Chinese differs from Romance languages and English in that it has an obligatory causative morpheme (1998: 408). He gives the following data.

(20) a. chuan chen ru le he di
boat sink.enter PERF river bottom
'The boat sank to the bottom of the river.'

b. di ren **shi** chuan chen ru le he di
enemy person CAUS boat sink.enter PERF river bottom
'The enemy made the boat sink to the bottom of the river.'

c. *di ren chen ru le chuan dao he di
enemy person sink.enter PERF boat to river bottom
'The enemy sank the boat to the bottom of the river.'

As shown in (20b) the causative is morphosyntactically licensed by *shi* and contrasts with the morphologically unmarked inchoative (20a). And, according to Juffs, there are no morphologically simple causatives in Chinese (20c). As for Japanese and Korean, Juffs cites Jacobson (1992) when he writes 'Japanese and Korean frequently require extra morphology for such alternations; however, this morphology usually appears as a bound suffix on the verb or less frequently as ablaut' (Juffs 1998: 409).

The experiment was an on-line task in which each sentence appeared on a computer screen word by word. Because the speed was controlled by the subject, the reaction times for each word, phrase and sentence could be recorded to yield patterns that reflect the speed of parsing. Additionally, following each complete sentence, the subject was asked to judge whether the sentence was grammatical or not. There were six tokens of each sentence type.

The grammaticality judgments of the Garden Path and non-Garden Path sentences were as expected; all language groups responded comparably. By contrast,

the expectation that there would be L1-based difference between the learners in the grammaticality judgments of the causative/inchoative sentences was not supported. The East Asian speakers were consistently less accurate than the Romance speakers for *all* variants of the alternation – including the inchoative form, which employs functional morphology in the Romance languages, but not in the Asian languages. This leads Juffs to conclude that the advanced speakers are all comparable with regard to their ability to judge grammaticality in English.

Juffs did find a difference, however, in the reaction time results. There was a significant difference in the response time results of the causative/inchoative sentences and specifically in the results of causative sentences like (19a). According to Juffs, the reaction times of the Japanese/Korean speakers were slower to a statistically significant degree than the Romance and control groups. The Chinese response time was faster than the Japanese/Korean speakers and slower than the Romance speakers, but not different from either in terms of statistical significance. This contrasts with the reaction time results for all of the other sentences, which showed no differences between the groups of learners.

Thus the expectation that differences will occur where the L1s differ morphosyntactically was disconfirmed in terms of the ability of the learners to accurately judge grammaticality. There was, however, a difference in the reaction time results on the causative variant: the Japanese/Korean speakers are the only group to respond more slowly as a group. Juffs explains 'that this difference is due to the way causativity is encoded in the bound morphology and possibly to the transfer of parsing strategy in the L1' (1998: 421), since Japanese and Korean use verbal morphology in causative formation.

This is certainly a reasonable explanation. In the context of the theory of multi-level insertion and derivational syntax, perhaps we can expand on the suggestion that there is a difference in the parsing strategy among the learners. If the English interlanguage of native Japanese and Korean includes a morphological requirement in the derivation of a causative, then learners will not be able to parse a morphologically simple causative in English – at least initially. In time, however, the learners will receive input that indicates that causative formation in English occurs without functional morphology. If this input causes restructuring in the IL grammar, then eventually, we would expect the transferred morphological requirement to be overcome. Accordingly, the acquisition of causatives by advanced learners ought to

result in responses that are indistinguishable from native speakers. Yet the results show a difference in terms of reaction time.

We can draw on the assumptions made in this thesis to explore possible explanations for this difference. To begin with, we assume that the IL of the Japanese and Korean learners of English includes a morphological requirement that must be met for syntactic derivation. In time, however, the existence of positive evidence in the input may lead to the creation of a new rule for causative formation. The question, then, is what happens to the morphological requirement? Is it possible that the requirement just disappears? It's not clear whether the input could lead to the removal of this rule; and the data suggests that there isn't IL restructuring to a strictly native-like grammar because the reaction times are different. One possibility, then, is that the new rule co-exists with the transferred rule. It may be that the existence of two rules, then, causes the parsing of these L2ers to be slower.

Alternatively, it may simply be impossible to create a new rule for causative formation because of the L1-based requirement. Instead, the learner may have to resort to some general cognitive learning strategy outside the language module to construct a rule. This second possibility is compatible with an approach like that of Bley-Vroman (1990) in which adult L2 acquisition is fundamentally different from UG-constrained L1 acquisition. If these learners are using some general cognitive domain to process causatives instead of the language module, this too might explain their slower overall parsing speed.

In sum, based on an on-line task, Juffs has found that advanced L2 speakers of English are like native speakers in terms of their intuitions about the causative/inchoative alternation, but those speakers whose L1 contains a bound causative functional morpheme parse causatives in English more slowly. I have tried to explain this result by suggesting that while it may be possible to add new rules to a grammar, it may be difficult to remove an existing rule. Moreover, the continued existence of a rule may interfere in processing such that the parsing time is slower for these learners.[20] We now turn to a study with less advanced speakers, where we find

[20] Another question is whether there were differences in terms of individual verbs because Juffs says that *some* verbs implicate bound causative morphology in Japanese and Korean. An item-by-item analysis might reveal differences for those causative sentences with verbs whose analogues require a causative morpheme and those that do not.

evidence of transfer among lower level speakers and through a different experimental task.

4.4.2 White, Brown, Bruhn-Garavito, Chen, Hirakawa & Montrul (1999)

Another study that points to L1 transfer of functional morphology in L2 development is that of White, Brown, Bruhn-Garavito, Chen, Hirakawa and Montrul (1999). These researchers conducted a series of studies to investigate the L2 acquisition of subject experiencer (21a) and object experiencer (21b) psyche verbs in English.

(21) a. **Alice** fears snakes.
b. Snakes frighten **Alice**.

White et al. accept the analysis of psyche verbs that posits the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker 1988) to be a universal principle underlying the linking of theta roles to arguments in syntax. Thus an experiencer theta role is assumed to be mapped onto a higher noun phrase than a theme theta role, at least at d-structure. And a sentence with object experiencer verb (21b) is assumed to be derived via the theme NP moving to some higher subject position, thus conforming to UTAH at d-structure but not surface structure (Belletti & Rizzi 1988).

White et al. ask whether L2 learners will show any difference in their acquisition of subject versus object experiencer verbs. They hypothesized that subject experiencer verbs will not be a problem because L2 learners can appeal to the universal thematic hierarchy. Any difficulty, they propose, will be found in the acquisition of object experiencer verbs as these sentences require the added complication of NP movement. In a series of tasks involving adult native speakers of French, Spanish, Malagasy and Japanese, White et al. find that their hypothesis is broadly supported: the only areas which posed problems for these L2 learners was with object experiencer verbs.

Interestingly for us, they also found a second unexpected result that seems to implicate transfer of functional morphology. Learners with a native language that employs morphology with object experience verbs had more difficulty with the experimental task than learners whose native language, like English, has no such morphology. This result can be seen most clearly in their experiment involving 15 French and 12 Japanese native speakers. The subjects were given a task in which they

had two pictures, one corresponding to an object experiencer interpretation and the other a subject experiencer interpretation. They had to determine which picture matched the subject or object experiencer sentence that was given. The results show that the two sets of learners responded comparably in identifying subject experiencer verbs, with low inaccuracy rates of .91 out of 10 and 1.2 out of 10 for the Japanese and French, respectively. There is a divergence, however, in their responses involving object experiencer verbs: the Japanese speakers were significantly worse at matching object experiencer verbs with the pictures, with an inaccuracy rate of 4.64 out of 10, as compared to 1 out of 10 by the French speakers.

To explain these responses, we can rule out proficiency. Both groups of learners scored within the same high intermediate range on the English language placement test that they were given. White (2003b: 227-228) points out that the difference may instead be attributable to the difference in the way in which Japanese and French encode sentences with object experience verbs. French is similar to English in that some verbs occur in a subject experiencer structure while others occur in an object experiencer structure, a difference understood to be lexically encoded on individual verbs.

Subject experiencer (French)
(22) Susanne admire Jean.
'Susan admires John.' (White et al. 1999: 180 (15))

Object experiencer (French)
(23) Le chien effraie Jean
'The dog frightens John.' (White et al. 1999: 180 (16))

Japanese differs in that it employs a morphological mechanism in the form of the causative morpheme (25) for encoding object experiencer sentences.

Subject experiencer (Japanese)[21]
(24) John-ga inu-o kowa-gar-u
John-NOM dog-ACC afraid.of-GAR-PRES
'John fears a dog.' (White et al. 1999: 179 (14b))

Object experiencer (Japanese)
(25) Inu-ga John-o kowa-gar-**ase**-ru
dog-NOM John-ACC be.afraid.of-GAR-**CAUS**-PRES
'A dog frightens John.' (White et al. 1999: 179 (14c))

[21] White et al. note that the morpheme *-gar* affixed to the verb in (24) can be interpreted as *become* and is not realized with all verbs in a subject experiencer sentence.

telic morpheme gives rise to an atelic interpretation (27b).

(27) a. Ivan **pro**-čet-e knigi Telic
Ivan **PV**-read-3 S/AORIST books.
'Ivan read (a specified quantity of) books.'

b. Ivan čet-e knigi Atelic
Ivan read-3S/AORIST books.
'Ivan read books.' (Slabakova 1999: 287)

Slabakova gave the 130 adult L1 Bulgarian subjects a cloze test to measure their English proficiency. The results indicated that the subjects spanned a fairly large range, from low to advanced English proficiency. Based on a one-factor ANOVA test, she divided them into three groups consisting of 35 low intermediate subjects (L-I), 50 high intermediate subjects (H-I) and 45 advanced subjects (A).

Of the studies conducted by Slabakova, there are two that bear directly on the issue of transfer of functional morphology. In the first, the L1 Bulgarian speakers (and 32 L1 English controls) were asked to judge 24 biclausal sentences. In these sentences, one clause established the context while the other was either telic or atelic. The subjects were to judge the sentences on a scale of -3 ('a completely unacceptable combination') to +3 ('a perfectly natural combination').[22] In the examples of the type of sentences tested (28), a # indicates an unnatural combination (Slabakova 1999: 295).

(28) a. #Antonia worked in a bakery and made a cake.
habitual context telic clause

b. Sharon worked in a bakery and made cakes.
habitual context atelic clause

c. #Mike drew a circle on a piece of paper but the circle is only half-finished.
telic clause unfinished event

d. Mr. Smith sold cars and now he sells motorcycles.
atelic clause atelic clause/unfinished

If the clause establishing context includes a habitual context, it is considered compatible with an atelic clause (28b) – but not with a telic clause (28a). Similarly, if the context clause included an unfinished event, then it is considered incompatible with a telic clause (28c). By contrast, an atelic clause is expected to be compatible

[22] A score of 0 signified 'I don't know'.

with another atelic clause (28d). As these judgments can be subtle, the responses of the native control group are crucial to form a benchmark.

Working within the Full Transfer/Full Access model, Slabakova explains that she expects subjects of low proficiency to perform like native speakers on atelic sentences (e.g. (28b) & (28d)). This is because atelic sentences in both languages can be considered comparable, namely, neither implicates structure-specific morphology. The responses by subjects of low proficiency to the telic sentences (e.g. (28a) & (28c)), by contrast are expected to be nontargetlike because Bulgarian, but not English, requires a functional morpheme to signal telicity. The expectation for advanced speakers is that their responses will be like the native speakers, because of UG-constrained acquisition (Full Access).

The results on the grammaticality judgment task show that the L-I subjects were significantly worse at judging the telic sentences than the other L2 learners and the control group. The mean judgment scores (range: -3 to +3) for the unacceptable telic sentences like (28a) were:

(29) Responses to habitual context + telic VP sentences (e.g. (28a)):
L-I group: 1.43
H-I group: .48
A group: .41
Controls: .46

That the L-I group finds these significantly more acceptable than all the other groups suggests that these learners do not realize that a predicate like 'make a cake' is telic in English without an overt telic marker (unlike Bulgarian). This suggestion receives further support from the results from the other set of telic sentences (e.g. (28c)). These are given robustly negative judgments by all the groups except the lowest.

(30) Responses to telic + unfinished sentences (e.g. (28c)):
L-I group: -.68
H-I group: -1.88
A group: -2.00
Controls: -2.15

Again, if the L-I subjects interpret the clause as atelic because there is no overt telic marker, then these sentences would not seem as unacceptable.

By contrast, the responses of the L-I group to the atelic sentences are comparable to the other groups' responses.

(31) Responses to habitual context + atelic VP sentences (e.g. (28b)):
L-I group: 1.94
H-I group: 1.75
A group: 2.00
Controls: 2.75

(32) Responses to atelic + atelic sentences (e.g. (28d)):
L-I group: 1.07
H-I group: .84
A group: 1.30
Controls: 1.99

The conclusion drawn by Slabakova is that these low level speakers can correctly judge atelicity in English because Bulgarian and English both lack any overt marker in atelic sentences. Nonnative-like judgments of telic sentences by low level speakers, by contrast, support the claim that Bulgarian speakers initially misinterpret telic clauses as atelic in English because of a lack of morphology analogous to the overt telic preverb in Bulgarian.

Results from the second task conducted by Slabakova further bolster this conclusion. In this task, subjects were asked to translate the telic/atelic clauses from the above task into Bulgarian. Although not all of the participants followed the instructions correctly, the 28 L-I subjects who did were significantly less accurate with English telic clauses than atelic clauses.

(33)

Accurate translation	L-I	H-I	A
habitual context + telic sentences:	**37.5%**	90%	90%
habitual context + atelic sentences:	77%	76%	89%
telic + unfinished sentences:	**51%**	79%	88%
atelic + atelic sentences:	64%	70%	80%

The lack of accuracy among the lower level learners on this translation task, combined with the results of the judgment task, supports the claim that (properties of) the telic morpheme transfers from the native language to interfere in L2 acquisition. Thus we have strong support for transfer of morphology giving rise to errors of interpretation by lower level speakers of English.

The question of development is addressed in Slabakova's second hypothesis in which she expects Bulgarian learners of English to eventually acquire telicity because of Full Access. The above results showing that the learners are becoming more targetlike as their proficiency improves is taken as support for this hypothesis. Further

support for her claims comes when considering individual results. Slabakova provides these results in recognition that whenever responses are presented as group results, it is difficult to know whether they reflect the grammars of individuals or are due to some kind of averaging effect instead.[23]

The individual results are presented by Slabakova using line graphs (1999: 308-310). The individual native speakers in the Control group confirm the reliability of the test instrument as they systematically judge compatible atelic clause combinations as more acceptable than the unnatural combinations involving telic clauses.[24] The line graphs for individual nonnative speakers show that the majority of L-I subjects fail to make a distinction between the two types of sentences. Moreover, for 31 of 34 subjects, the tendency is to *accept* both types of sentences; in other words there is almost no rejection of either kind of sentence by the less proficient speakers.[25]

In the H-I group there are some subjects who seem native-like in that they consistently judge the compatible combinations as better than the incompatible ones, while others are like the low level speakers, failing to make a distinction. As reported in Slabakova (1999: 310; 2001: 183), 18 of the subjects in this group show a target-like distinction while 28 do not.

And finally, the individual analysis of the advanced subjects reveals that the majority has a decided preference for the compatible sentences over the incompatible ones. Unfortunately Slabakova does not report any raw numbers in connection with this claim. However, the line graph indicates that only 3 of 45 advanced speakers fail to show a distinction between the two types of sentences and that an additional 3 subjects do the opposite of what is expected, showing a higher acceptance rate for incompatible sentences than compatible. In short, based on her line graph, 39 of the 45 advanced speakers give target-like responses.

In sum, Slabakova's results show a failure to make English targetlike judgments involving telicity among low level native Bulgarian speakers followed by progressive acquisition of the telic-atelic distinction by higher level learners, a result

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[23] These individual results are also needed to evaluate Slabakova's third hypothesis: that the acquisition of telicity is part of a larger parameter involving other phenomena. This would then support the Complex Predicate Parameter proposed by Snyder (1995a, 1995b, 1996, 2001) and Snyder & Stromswold (1997). This will be discussed in the next section.

[24] Actually, two of the 32 controls do not show this desired result. This is discounted as a product of asking naïve subjects to judge aspect, which is 'notoriously murky'.

[25] There is no mention of why 34 subjects are included in this graph when earlier the L-I group was said to total 35, nor any mention of the missing 4 subjects in the H-I group.

that strongly supports the Full Transfer/Full Access model. This result also supports a view in which the existence of construction-specific functional morphology in the native language is implicated in the development of an interlanguage. In this case it appears as though the existence of a telic morpheme in Bulgarian can be seen as causing L2 English learners to interpret telic sentences in English as atelic. The assumption is that in the absence of overt morphology, the learners initially interpreted all sentences as atelic because their (L1-based) interlanguage grammar would require a telic morpheme to give rise to a telic interpretation.

To conclude, this L2 study suggests that Bulgarian speakers initially transfer the telic morpheme from their L1 causing them to misinterpret telic sentences in English as atelic. In time, however, learners receive enough input to overcome this L1 transfer and recognize that telicity is signaled compositionally in English. Thus, this study adds to the growing picture of L1 transfer of functional morphology. Though we have now seen several studies that suggest L1 transfer of functional morphology, notice that the type of morphology implicated in these studies is not the same. Both White et al. and Slabakova tested linguistic phenomena involving functional morphology that gives rise to a particular interpretation. Specifically, the preverb in Bulgarian and the causative morpheme in Japanese give rise to a telic and object experiencer interpretations, respectively. This contrasts with the work of Montrul and Juffs in which the existence of (causative) functional morphology determines grammaticality.

There is a second difference as well. The results from Slabakova indicate that the need for a telic morpheme in the early interlanguage is overcome such that telicity via mechanisms other than morphology can be acquired.[26] Montrul's study, by contrast, indicated an intermediate stage of IL development characterized by overgeneralization. In my reanalysis of Montrul's results, I argued that this overgeneralization reflects a stage of development in which learners acquire the underlying syntax of a construction, but have not yet acquired the relevant lexical restrictions. We now turn to another study which investigates transfer of functional morphology required for grammaticality and which specifically addresses whether IL development is characterized by overgeneralization or by conservative input-matching.

[26] Whether this should be seen as an instance of UG-constrained restructuring or extra-linguistic rule formation is an open question that could, perhaps, be addressed through on-line experimentation.

4.4.4 Whong-Barr & Schwartz (2002)

Whong-Barr and Schwartz (2002), (henceforth WB&S) investigated the L2 acquisition of the English double object construction by L1 Korean and L1 Japanese children.[27] As is well known, there are certain ditransitive verbs in English that allow two syntactic forms. The examples in (34) show the alternation with goal forms and in (36) with benefactive forms; these contrast with other verbs that only occur in the syntactic form in which the goal and benefactive oblique objects occur in prepositional phrases, as shown in (35) and (37), respectively.

(34) a. Emma showed the party dress **to Karen**.
b. Emma showed **Karen** the party dress.

(35) a. Emma described the party dress to Karen.
b. *Emma described Karen the party dress.

(36) a. Lee found the lost coins **for David**.
b. Lee found **David** the lost coins.

(37) a. Lee collected the lost coins **for David**.
b. *Lee collected **David** the lost coins.

Japanese and Korean are different from English with regard to analogous goal forms: double object forms are not grammatical, (38b) and (39b); instead only the postpositional forms (38a) and (39a) are possible.

Japanese goal forms:

(38) a. Hanako-ga Taro-**ni** hagaki-**o** oku-tta.
Hanako-NOM Taro-**to/DAT** postcard-**ACC** send-PST
'Hanako sent a postcard to Taro.'

b. *Hanako-ga Taro-**o** hagaki-**o** oku-tta.
Hanako-NOM Taro-ACC postcard-ACC send-PST
(WB&S 2002: 583-4 (5))

Korean goal forms:

(39) a. Mia-ka Yong-**eykey** kulim-yepse-**lul** ponay-ss-ta.
Mia-NOM Yong-**to/DAT** picture-card-**ACC** send-PST-DECL
'Mia sent a postcard to Yong.'

b. *Mia-ka Yong-**ul** kulim-yepse-**lul** ponay-ss-ta.
Mia-NOM Yong-ACC picture-card-ACC send-PST-DECL
(WB&S 2002: 584 (7))

[27] This work is based on the 1999 MA dissertation of Whong-Barr.

In terms of the benefactive forms, however, Japanese and Korean differ from each other. Korean allows two forms, a postpositional form (40a) and a double object form (40b), while Japanese allows only the postpositional form (41).

Korean benefactive form:

(40) a. Mia-ka Yong-**eykey** kulim-**ul** kuly-e **cwu**-ess-ta.
Mia-NOM Yong-**for/DAT** picture-ACC draw-L **BEN**-PST-DECL
'Mia drew a picture for Yong.'

b. Mia-ka Yong-**ul** kulim-**ul** kuly-e **cwu**-ess-ta.
Mia-NOM Yong-ACC picture-ACC draw-L **BEN**-PST-DECL
'Mia drew Yong a picture.'

(WB&S 2002: 585 (8))

Japanese benefactive form:

(41) a. Hanako-ga Taro(-no tame)-**ni** e-**o** kai-ta.
Hanako-NOM Taro(GEN sake)-**for/DAT** picture-ACC draw-PST
'Hanako drew a picture for Taro.'

b. *Hanako-ga Taro-**o** e-**o** kai-ta.
Hanako-NOM Taro-ACC picture-ACC draw-PST

(WB&S 2002: 584 (6))

Thus with benefactive forms, Korean can be compared to the set of English verbs which allow a double object alternant. Notice, however, that the Korean benefactive forms include the so-called light verb *cwu-*, glossed BEN for benefactive in the examples, a morpheme required for grammaticality.

(42) *Mia-ka Yong-**eykey/-ul** kulim-**ul** kuly-ess-ta.
Mia-NOM Yong-**for/DAT/-ACC** picture-ACC draw-PST-DECL

(WB&S 2002: 585 (9))

In sum, with regard to goal forms, English allows a double object variant with a set of verbs, while neither Japanese nor Korean does.[28] With benefactive forms, Korean, but not Japanese, is like English in that double object forms are grammatical. This contrast can be viewed in two ways, however. There is the difference between Korean and Japanese in terms of which language allows an alternation: Korean, but not Japanese, allows a benefactive double object form. But there is also the morphological difference: the benefactive form in Korean includes a morphological licensor, while there is no such licensor in English.

These two perspectives lead WB&S to question whether there is 'transfer of syntax' or 'transfer of morphology.' If transfer is implicated only at the level of

[28] Korean allows double object goal forms with three verbs, *cwuta* 'to give,' *kaluchita* 'to teach' and *mekita* 'to feed.' See WB&S (2002) for discussion.

syntax, then the existence of benefactive double objects in Korean should result in responses in which Korean speakers generally allow benefactive double objects in English. If, however, transfer of morphology occurs, Korean speakers should (initially) reject these English double objects because English does not have any analogous morphological licensor.

To test these possibilities, WB&S performed an oral grammaticality judgment task. The task was oral because the subjects were children. The six native English speakers who served as the control group ranged in age from 6;11 to 10;10. The five Japanese and five Korean children ranged in age from 7;3 to 8;11 and from 6;6 to 10;2, respectively. In the task, children watched a short scenario using props, enacted by the researcher. The scenario was followed by pairs of sentences, one in the double object form and the other in the Prepositional form, and the children were asked to judge whether they were acceptable or not in English.[29]

The results showed that the subjects of all three language groups correctly accepted the Prepositional forms. They also showed similar responses for the goal forms; all of the groups of subjects (including the native speakers) overgeneralized to allow illicit double object goal forms to some extent. Only one speaker, the Korean subject with the lowest proficiency, responded differently by not allowing any of these forms, whether licit or illicit in the target grammar. This restrictive trend was found in a more robust way among the Korean responses to the benefactive forms: licit benefactive double objects were accepted, while illicit double objects were not. This is in direct contrast with the results of the Japanese speakers who responded to the benefactive forms much like they did with the goal forms – showing overgeneralization of double object forms.

In short, the only clear difference between the Korean and Japanese results occurred exactly where the two languages diverge morphologically. This leads WB&S to conclude that there is indeed transfer of morphology in L2 acquisition. They go on to speculate that the Korean speakers are restrictive because of transfer of the morphological licensor in these speakers' interlanguage. The intuition is that absence of an analogous licensor causes these speakers to reject benefactive double object forms in English. These subjects are expected to hear such forms in the input, however. This positive evidence is posited to eventually result in the one-by-one

[29] See WB&S (2002) and Whong-Barr (1999) for details.

conservative learning of these forms. In sum, we have evidence of transfer of morphology causing restrictive responses, followed by conservative learning, contrasted with overgeneralization in IL development by learners whose L1 has no morphology to transfer.

Oh and Zubizarreta (2003, 2004) have recently replicated the WB&S study testing 65 adult Korean learners of English and 52 adult L1 Japanese learners of English, using a written grammaticality judgment task including the same verbs as WB&S. They also found a tendency for speakers of lower proficiency to reject licit and illicit double object forms. Yet their results differed from WB&S in three respects. Firstly, the group rates show that lower level subjects from both language groups, Japanese and Korean, rejected double object forms at comparable rates. Secondly, this tendency to reject double object forms occurred both in response to benefactive double objects and goal double objects (though the rejection rates are higher for benefactive forms than goal forms). And thirdly, they do not report evidence of overgeneralization whereby illicit double objects are accepted by either group of learners at any of the stages of development. Yet it is difficult to draw any conclusions from these results because they are only group results. We cannot know from these results whether individual subjects show overgeneralization.

In conclusion, then, more investigation is needed to determine whether the acquisition of double object forms in English includes a developmental trend in which learners broadly apply the syntactic rules to productively allow all verbs in this form before learning the relevant lexical restrictions that constrain the alternation.[30] Furthermore, the question of whether overgeneralization is a facet of IL development when it comes to argument structure alternations generally is also not clear from the available data. And on this last point, there are contradictions between when overgeneralization is found. WB&S find overgeneralization from L1 Japanese speakers – whose native language does not include relevant overt functional morphology. Montrul, by contrast, finds overgeneralization among Turkish native speakers – whose native language *does* include a functional morpheme.

To complicate the picture further, this overgeneralization contrasts with the

[30] One option is that the difference has to do with age. Oh & Zubizaretta (2003, p.c.) have also tested the L2 English of 10 Korean children (mean age: 10) and found the same trends as WB&S (2002): overgeneralization with the goal datives and restrictive responses with the benefactive datives. Why there might be this difference between adults and children in terms of IL development is not clear.

conservative learning pattern found among the L1 Korean children in WB&S. To explain this latter difference, we might look to the difference between the two alternations. As shown above, Korean productively allows double objects. This contrasts with the ability of only certain classes of verbs to participate in the causative/inchoative alternation in Turkish. Recall that overgeneralization was said to occur when positive input indicated that verb classes are delimited differently in the native and target languages. Thus, IL development may proceed differently, depending up whether transfer of morphology interacts with acquisition of broad syntactic principles together with lexical properties, or just the syntax alone.

These questions of development, together with the larger question of transfer of morphology, are explored in the next chapter where a small scale experiment on the L2 acquisition of resultatives is reported. Before we move to that study, however, we will turn to the existing literature on the acquisition of resultatives.

4.5 The acquisition of resultatives

The acquisition of resultatives has not been widely documented, neither in L1 nor in L2 acquisition. The most developed discussions of the acquisition of resultatives has centered on a proposal by William Snyder that the resultative is one of several constructions implicated in his so-called Complex Predicate Parameter. In the final section of this chapter, I will briefly present Snyder's work as well as the work in L1 and L2 acquisition that has grown out of his proposal.

4.5.1 Snyder's complex predicate parameter

In a series of studies, Snyder (1995a, 1995b, 1996, 2001) has argued for a unified set of complex predicates which he considers part of a single parameter. Snyder investigates a number of complex predicate forms which he refers to as constructions. Using his language, the Complex Predicate Parameter includes the resultative construction (43a), the verb-particle construction (43b), the *make*-causative construction (43c), the perceptual report construction (43d), the *put*-locative construction (43e), the *to*-dative construction (43f,) and the double-object dative construction (43g).

(43) a. John painted the house red.
b. Mary picked the book up/picked up the book.

c. Fred made Jeff leave.
d. Fred saw Jeff leave.
e. Bob put the book on the table.
f. Alice sent the letter to Sue.
g. Alice sent Sue the letter. (Snyder 2001: 325 (1))

Behind the idea that these 'constructions' form a unified set is the intuition that at some level, the verb combines with a secondary predicate to give rise to a single interpretation; or, to use a more Davdisonian approach, the predicate has a single event structure. Taking the resultative in (43a) as an example, there are two syntactic predicates, *paint* and *red*, but only a single event of house painting, whose culmination is the resultant endstate of being red. For Snyder, moreover, the property that determines whether a language allows the above set of complex predicates is the free generation of word level compounds, i.e. X^0 - X^0 compounds.

Because it would take us too far afield, I will not discuss Snyder's ideas in detail here, but instead focus on the research that has been conducted in the context of this parameter insofar as it has tested for knowledge of the resultative. Snyder's idea of a parameter predicts that the set of complex predicates emerge together in L1 acquisition, and further that they correlate with productive compound formation. To put this prediction to the test, Snyder and Stromswold (1997) analyzed the spontaneous speech of 12 L1 English children between the ages of 1;4 and 2;6 from the CHILDES database. They find correlations in the emergence of double object datives, the *put*-locative, the verb-particle construction, the causative/perceptual construction, and *to*-datives, allowing them to argue that these constructions are implicated in a single parameter unifying complex predicates.[31] Unfortunately, however, they did not find any examples of resultatives, a result which Snyder (2001) unhelpfully attributes to 'extremely low frequency in the speech of both children and adults' (p. 327 fn 4).

In the same vein, Miyoshi (1999) analyzed the spontaneous speech of one Japanese child, Aki (2;5 - 2;7), whose corpus is a part of the CHILDES database. Yet here again, there was an absence of resultatives. Thus, based on spontaneous data, it is not clear that children have knowledge of resultatives in their native language, at least by the ages of 2;6 and 2;7 in English and Japanese, respectively. But the absence of

[31] The claim of emergence was based on the first occurrence of a particular complex predicate in the corpus. Note that this methodology is questionable, especially if compared with other definitions of 'acquisition' in the literature such as Brown's (1973) 90% correct use in obligatory contexts.

resultatives in samples of spontaneous data does not necessarily mean the grammar does not allow such forms. To my knowledge, there has only been one attempt to test for knowledge of resultatives in the native grammars of children. Isobe and Sugisaki (2000) conducted an experimental study of L1 Japanese children. Their aim was to see whether a child's ability to produce novel N-N compounds correlates with the ability to interpret resultatives correctly. Through their experiment we can discover whether Japanese children have knowledge of resultatives in their native language.

In their study, 20 native Japanese children between the ages of 3;4 and 4;11 (mean = 4;2) were given two computerized tasks. The first was an N-N task: The child had to identify two pictures, each with a familiar item (e.g. a bear, a clock). The third picture showed a single item, but as a combination of the two nouns just used (e.g. a clock in the shape of a bear; target: 'bear-clock'). Each child saw four sets of pictures. Novel N-N compounding was considered acquired if the child correctly produced at least three of the four desired compounds.

After the noun task came the resultative task, a truth-value verification task (Crain & Thornton 1998). The child was presented with a story, followed by an animated character who described in one sentence what s/he thought had happened in the story. The child then had to decide whether the animated character was correct or not. The stories were designed such that either a resultative or a non-resultative interpretation was possible. And the sentences following each story were in the form of either a resultative or a non-resultative. The non-resultative option was one of simple attributive adjective modification. The idea was that if a child could not process a resultative construction, s/he would instead interpret the secondary predicate in the target sentence as an attributive adjective. Example (44a) illustrates a resultative sentence and (44b) a sentence with an attributive adjective.

(44) a. John-ga aka-ku ie-o nutteiru
John-NOM red house-ACC painting
'John is painting the house red.'

b. John-ga aka-i ie-o nutteiru
John-NOM red house-ACC painting
'John is painting the red house.' (Isobe & Sugisaki 2000: 82 (10 - 11))

The test included two sets of stories, the first set used the verb *nuru* 'paint', as in the examples above, and the second the verb *kiru* 'cut.' For each set there were two

scenarios that were followed by resultative sentences, and one followed by a sentence with an attributive adjective. The criterion for 'acquisition' in this task was if the child gave correct answers to all three scenarios for either the 'cut' verb or the 'paint' verb. Table 6 shows the results in terms of pass/fail for the two tasks. The ages of the children are shown as well.

		Resultative Task	
		Pass	Fail
Compounding Task	Pass	10 (Age: 3;7 - 4;8)	2 (Age: 4;6, 4;8)
	Fail	2 (Age: 4;8 - 4;11)	6 (Age: 3;4 - 4;0)

Table 6 L1 Japanese results on the compounding task and the resultative task
(Based on Isobe & Sugisaki 2000: 85-6, Tables 1 and 2)

The two shaded cells are the results that support the claim for a parameter that implicates N-N compounding and complex predicates – or at least resultatives – since these children either passed both tasks or failed both tasks.[32] For our purposes, this study shows that 12 of 20 L1 Japanese children of a mean age of 4;2 have acquired the resultative in their native language.

A second set of studies seeking to support the Complex Predicate Parameter was conducted by Slabakova, firstly as part of the larger study of L2 English telicity, discussed previously in this chapter, and secondly in an L2 Spanish experiment. Slabakova (1997, 2001) wanted to see whether there might be a correlation between the acquisition of telicity and the acquisition of the set of complex predicates implicated in Snyder's parameter. Because this question is not directly relevant to our research questions, I will not explore this work except in the context of the resultatives that were tested. Specifically, her experiment is useful for methodological reasons as the creation of licit and illicit resultative sentences for testing is not an easy task.

In her study, the same 130 L1 Bulgarian subjects who were tested on telicity were asked to judge the grammaticality of 20 licit and illicit resultatives. The responses to these test sentences are shown in Table 7, based on the bar graph given in Slabakova (2001: 165).

[32] The four who passed one task but failed the other are the oldest children. Isobe and Sugisaki say these children seemed distracted by the computer and were perhaps not very attentive (2000: 90 fn. 5).

	Grammatical Resultatives (N = 20)	Ungrammatical Resultatives (N = 20)
Low Intermediate	54%	52%
High Intermediate	60%	78%
Advanced	74%	85%
American controls	98%	97%
British controls	90%	99%

Table 7 Accuracy in judging transitive resultatives

As highlighted by Slabakova (2001: 165), the Advanced and High Intermediate groups are better at rejecting ungrammatical resultatives than accepting grammatical ones. The Low Intermediate subjects are equally poor: responding at chance level to both types. Slabakova does not discuss these results in detail because she is interested in the set of complex predicate structures more generally.[33] I suggest that they indicate interlanguage development, since the subjects at higher proficiency are nearer to the controls in their responses.[34]

This experiment is most useful, however, for methodological reasons. Slabakova includes the test instrument itself in an Appendix (2001: 202-204). The Appendix does not list the sentences in terms of type, but instead presents the test instrument as given to the test subjects. In order to analyze her test instrument, I divided the sentence by type revealing the following breakdown:[35, 36]

(45)

Grammatical Resultatives:	15
Ungrammatical Resultatives:	18
Verb Particle Sentences:	27
Double Object Sentences:	20
Total number of sentences:	80
Total number of Resultative sentences:	28

Unfortunately, there is a discrepancy in numbers. Slabakova reports on responses to 20 grammatical resultatives and 20 ungrammatical resultatives (2001: 155), but by

[33] Slabakova (2001) finds that the three complex predicate structures do not seem to be acquired as a cluster as judgments on double objects are significantly more accurate than on verb particle and resultative structures at all levels of proficiency. See Slabakova (2001: 188-192) for discussion.
[34] Notice also that the British control subjects are not entirely satisfied with the grammatical resultatives, accepting them only at a 90% rate. As we will see in the next chapter, native English speakers show a degree of variation and uncertainty when judging the grammaticality of resultatives.
[35] There were also 5 grammatical intransitive resultatives (e.g. *Peter's brother smoked himself into the grave*). I will not discuss them, however, because Slabakova does not include them in her analysis of results.
[36] The judgments are not indicated in Slabakova's Appendix, but instead are mine.

counting the resultatives in the test instrument, we find 15 grammatical sentences and 18 ungrammatical.

Furthermore, taking a closer look at the 18 ungrammatical sentences, there emerge a few problems. Consider the following sentences.

Ungrammatical Resultatives:

(46) Virginia loves her son and two daughters happy.
This German cheese stinks me absolutely insane.
The phone rang the man in the house silent.
The boy dressed like Superman hit three people upset.
Their colleague Jonathan remained a loser upset.
} Resultative structure

(47) Our friend from Quebec likes raspberries ridiculous.
My friend Pamela feared the dinosaurs senseless.
Patrick knew the answers to all problems ready.
The veterans in the sanitarium hated the war angry.
My roommate Chandler resembles his dog strange.
} Nonsensical

(48) The wild party on the top floor shouted hoarse.
Peter's classmates and school friends sang hoarse.
The tired tourists from Southern Italy walked sore.
} No object

(49) The tall woman dressed in white drank herself.
Natasha and her sister sneezed their handkerchiefs.
The neighbours' small mean dog barked Mr. Smith.
The joggers in Central park ran their Nikes.
The happy children and parents laughed themselves.
} No secondary predicate

The 3 sentences in (48) lack direct objects and the 5 in (49) have no secondary predicates. And of the 10 remaining sentences, 5 that have the surface structure of a resultative are, in fact, nonsensical (47). None of these are pragmatically possible with an object resultative interpretation. Thus the rejection of these sentences could well be for reasons other than syntactic grammaticality. It is, therefore, not surprising that there was a tendency for subjects to reject ungrammatical resultatives at higher rates than they accepted the grammatical ones.

After removing the clearly problematic sentences, we are left with the five sentences in (46). Yet even these sentences are not entirely unproblematic. Three of them include intransitive verbs, or at least verbs that can be used intransitively (*stink, ring,* and *remain*).[37] And one of the remaining sentences in (46) is a garden path

[37] My intuition is that illicit or uncommon resultative combinations including intransitive verbs are more unacceptable than those with transitive verbs, an intuition supported informally by other native speakers whom I have consulted. If these kinds of resultatives are more clearly bad, this could have had the effect of inflating the rejection rates of ungrammatical resultatives.

sentence (*The boy dressed like Superman hit three people upset.*) Indeed, the only unproblematic ungrammatical transitive resultative is *Virginia loves her son and two daughters happy*. In short, it is possible that the accuracy rates for ungrammatical resultatives are inflated because of how the sentences were constructed. Thus it is not surprising that Slabakova's subjects are better at rejecting ungrammatical resultatives than they are at accepting grammatical ones. This does not render her results entirely uninteresting as there is still a clear pattern of development, but does suggest a need for a revised study.

Slabakova (2002) reports on a second more carefully controlled experimental study investigating resultatives. In this second work she focused on the L2 acquisition of Spanish resultatives by L1 English and L1 French speakers. She chose these subjects because of the contrast between English and French with regard to complex predicates (and compound formation). French is like Spanish in that neither allows resultatives equivalent to the English form. Slabakova gives the following example for Spanish.[38]

(50) *Ben lavó las ventanas limpias
Ben wiped the windows clean (Slabakova 2002: 514 (9b))

The expression of a resultative in Spanish (and French) requires a periphrastic biclausal structure instead.

(51) Ben lavó las ventanas hasta que quedaron limpias
Ben wiped the windows until they-were clean
(Slabakova 2002: 514 (9a))

She was interested to see if English speakers would allow ungrammatical Spanish sentences like (50) because of L1 transfer, and hypothesized that French speakers, by contrast, would not. She was, in fact, interested to see whether English learners can retreat from a superset setting which allows both a monoclausal resultative and a biclausal form to the Spanish subset set which only allows the biclausal form. In other words, she was interested in the interaction of L1 transfer and IL development.

Because of the expectations of both transfer and development, she sought English learners of low, intermediate and high proficiency. Her French speakers, by contrast were all of low proficiency, because she was only interested in evidence of

[38] This sentence is grammatically correct with an attributive adjective interpretation: Ben wiped the clean windows.

transfer in comparison with the low level English learners of Spanish. In total, she had 25 French native speakers of low Spanish proficiency, 33 English speakers of low Spanish proficiency, 27 English speakers of intermediate proficiency and 26 English speakers at an advanced level in Spanish. All subjects were adults with comparable ages of first exposure.

The test instrument was a grammaticality judgment task which included 7 grammatical periphrastic Spanish resultatives and 7 ungrammatical Spanish resultatives like the examples in (51) and (50), respectively.[39] The literal translations of the 14 sentences are all acceptable in English.

Slabakova finds strong support for her expectations. As expected by Full Transfer, the French speakers (of low proficiency) correctly reject the illicit resultatives at the rate of 80%, a considerably high rate when compared with the very poor rejection rate of 31% evidenced by the low level subjects whose L1 is English (2002: 522). This means that these English speakers accepted these ungrammatical Spanish resultatives at a rate of 69%. Thus it seems reasonable to appeal to L1 transfer to explain these results.[40]

Looking at the results of the English native speakers at all three proficiency levels in Spanish reveals a measure of interlanguage development that supports the second expectation of Full Access as well. These results are shown in Table 8, based on the bar graph in Slabakova (2002: 524).

Low	Intermediate	Advanced	Spanish Controls
31 %	41%	56%	89%

Table 8 Rejection of ungrammatical resultatives by L1 English subjects

As noted by Slabakova, although there is a developmental trend, even the advanced group is quite poor at rejecting these ungrammatical resultative sentences. Her explanation is that there is inadequate negative evidence to enable the learners to acquire resultatives in Spanish. This conclusion comes from her presentation of the L1 English – L2 Spanish scenario as one of a superset-subset relationship because English allows both simple and periphrastic resultatives while Spanish only allows the latter. In this situation, she reasons, there is no positive evidence that could force the

[39] She tested double objects, verb particle constructions and noun noun compounds as well.
[40] Slabakova finds this same divergence in response to (illicit) double object sentences, verb particles and noun noun compounds by these two sets of learners.

unlearning of the larger superset possibility. This is especially true when considering that stings like that in (50) are grammatical, albeit with an unfelicitous non-resultative interpretation (see footnote 40). This may, however, explain why the Spanish controls don't robustly reject these sentences.

To summarize the relevant points of this work, Slabakova does find evidence of L1 transfer in the acquisition of L2 Spanish resultatives. In both the L2 Spanish and L2 English study she also finds the resultative results to be less robust than results with other complex predicates. This holds true for some of the native speaker control responses as well. This kind of variability will also show itself in the experimental study of the acquisition of resultatives in L2 English in the next chapter.

4.6 Conclusion

In this chapter I have raised questions of L1 transfer and L2 development. In doing so, I have explored the question of what transfers, arguing against a view of modular transfer, and supporting the Full Transfer position. Yet I have argued that the notion of Full Transfer must include not only the grammatical rules of the L1, but the process of syntactic derivation as well. Specifically, when a particular construction requires some functional morphology, this requirement is expected to transfer to the interlanguage as well. If the target language does not have any equivalent morphology, however, the acquisition process is expected to falter.

Building on the analysis of morphemes offered earlier in this thesis, however, the effect of transfer of morphology could be different depending on the nature of the morphology in question. My suggestion is that while omission of inflectional morphology does not seem to reflect flaws in underlying grammar, the lack of mid-level derivational morphology does. This view finds support in existing L2 acquisition studies of the causative/inchoative alternation (Montrul 1997, 2001; Juffs 1998), psyche verbs (White et al 1999), double objects (Whong-Barr & Schwartz 2002, Oh & Zubizarreta 2003, 2004) and telicity (Slabakova 1997, 1999, 2001).

In order to further explore questions of transfer and different types of morphology, I conducted an experimental study on the acquisition of the English resultative by Korean and Chinese native speakers. Resultatives were chosen because of the morphological differences that obtain among these three languages. As discussed at length in Chapters 2 and 3, resultatives in Korean implicate a morphological marker while English resultatives do not. My study investigates

whether this morphological marker in Korean is implicated in the acquisition of L2 English. Chinese speakers were tested to provide a contrast because Chinese contains a resultative without any relevant functional morphology, much like English. We now turn to the experimental study, looking for empirical support for the above theoretical claims about L1 transfer and interlanguage development.

Chapter 5 An experimental study of the L2 acquisition of English resultatives

5.0 Introduction

In this chapter I present an experimental study of Korean and Chinese native speakers learning English as a second language. The two groups were tested on their knowledge of English resultatives. First, I will provide a brief summary of the most salient features of the resultative in each of the three languages, and then I will present the actual sentences that were tested. This will be followed by a discussion of the general issues in acquisition and morphosyntax that underlie the experimental study. These issues form the basis of the hypotheses and specific expectations that are put forward next. I will then turn to issues of methodology as I discuss the participants, the design of the test instrument and the procedures of the experiment itself. This will be followed by a presentation of the results of the study.

5.1 Summary of language facts

While the resultative was discussed at length in Chapters 2 and 3, in this section I give a brief descriptive summary of the relevant language facts. The resultative in English, Korean and Mandarin Chinese is comprised of a verb and secondary predicate combination that gives rise to the structure-specific interpretation that the object changes to the resulting state described by the secondary predicate as a result of the action of the verb. And in all three languages some resultatives contain verbs that are normally transitive, while others include intransitive verbs. English (1a) and Chinese (1c) are similar in that they both have a resultative that does not implicate structure-specific functional morphology, in contrast with Korean (1b) where the resultative *-key* morpheme occurs in all resultatives, whether the verb is considered transitive or intransitive. The following examples show transitive and intransitive resultatives in each of the three languages.[1]

(1) Transitive Resultatives

a. Mary washed the dishes clean. English

b. Mia-nun cepsi-lul kkaykkusha-**key** ssis-ess-ta Korean
Mia-TOP dishes-ACC clean-KEY wash-PST-DECL
'Mia washed the dishes clean.'

[1] I thank the following for their grammaticality judgments in Korean and Chinese: Chul-kyu Kim, Hyun-ah Kim, Jeong-Young Kim, Jin-hee Kim, Yuet Wah Lam, Frances Liao, Kyung-jin Min, Chang-won Park, Gihoon Song and Zheng Zheng Wang.

c. Mary xi ganjing le panzi — Chinese
Mary wash clean PRF dishes
'Mary washed the dishes clean.'

(2) Intransitive Resultatives
a. Mary ran her feet sore.

b. Chris-nun palpatak-i talh-**key** tally-ess-ta — Korean
Chris-TOP feet-NOM worn-KEY run-PST-DECL
'Chris ran her feet sore. (lit.=worn)' (Kim & Maling 1997: 192 (8))

c. Mary pao suan le jiao — Chinese
Mary ran sore PRF feet
'Mary ran her feet sore.'

All of the examples in this section include sentences that were used in the experiment. A complete list of test sentences can be found in Appendix A; the Korean resultative analogues can be found in Appendix B, and the Chinese in Appendix C.

As discussed earlier in this thesis, though resultative formation is considered productive in all three languages, there appear to be lexical restrictions such that some verb-secondary predicate combinations are not allowed. While there is some overlap among resultatives that are not licit in each of the three languages, there are also differences. The following examples illustrate resultatives that are said to be ungrammatical in English, Korean and Chinese.

(3) Transitive Resultatives
a. * Mary dropped the glass broken. — English

b. * Mia-nun ku yulican-i kkayeci-key ttelettuly-ess-ta — Korean
Mia-TOP the glass-NOM broken-KEY drop-PST-DECL

c. * Mary shuai sui le bolibei — Chinese
Mary drop break PRF glass

(4) Intransitive Resultatives
a. * Mary snored Sarah awake. — English

b. * Mia-nun Yong-i cameysekkay-key kholulkolh-ass-ta — Korean
Mia-TOP Yong-NOM awake-KEY snore-PST-DECL

c. * Mary dahan chao xing le Sarah — Chinese
Mary snore wake up PRF Sarah

Yet, as will be discussed when considering the results of the experimental study, the language facts are not entirely straightforward. Specifically, Chinese

appears to have a second 'resultative' form. Notice in the following examples that the resultative expressed in the (a) form can alternatively be expressed in the (b) form as well.

(5) a. hongganji jiao gan le ta de jiake
dryer spin dry PRF she POS jacket
'The dryer spun her jacket dry.'

b. hongganji jiao de ta de jiake gan le
dryer spin de she POS jacket dry prf
'The dryer spun her jacket dry.'

(6) a. Mary tiao huai le ta-de xiezi
Mary jump worn PRF she-POS shoe
'Mary danced her shoes worn.'

b. Mary tiaowu tiao de xiezi dou huai le
Mary dance jump DE shoe DOU worn PRF
Mary danced her shoes worn.'

Notice that in the (b) form, the verb-result phrase word order is reversed and there is the added morpheme *de*. I did not become aware of this resultative form until after I had conducted my experimental study and will therefore not discuss it further at this point.[2] However, this second form will be examined closely in the next chapter because unclear results of the experimental study point to the importance of this second form.

An additional restriction on the English resultative is that the result predicate cannot refer to the subject of the sentence. This contrasts with Korean and Chinese which both allow 'subject resultatives'.

(7) a. * Mary shouted (herself) fainted. English

b. Chris-ka kkamulachi-key solichi-ess-ta Korean
Chris-NOM fainted-KEY shout-PST-DECL
'Chris shouted (himself) fainted.' (Kim & Maling 1997: 194 (15))

c. Mary jiao yunguoqu le ziji Chinese
Mary shout fainted PRF herself
'Mary shouted herself fainted.'

[2] If this second resultative were to be accounted for here, it would render the hypotheses as they stand nonsensical.

In addition to resultatives, there are so-called object depictives in English in which the post-verbal adjective does not describe any resulting state, but instead describes the object at the time of the action. Depictives like (8) were included as distractor sentences in the experiment.

(8) Mary wore the jacket dry.

Also possible are depictives in which the predicate adjective modifies the subject of the sentence.

(9) Mr. Jones taught the class drunk. (means: Mr. Jones was drunk.)

These resultative and depictive sentences can be contrasted with sentences that have post-verbal attributive adjectives.

(10) Mary ordered the mushroom pizza.

5.2 Summary of sentences tested

Based on the language facts, 48 test sentences were devised. Half of these were resultatives and can be broadly divided into four sets. The resultatives of the first set are considered grammatical in English and their analogues are also grammatical in Korean and Chinese; therefore this set of sentences will be referred to as GGG sentences (G = grammatical). The second set contains resultatives that are ungrammatical in English, and whose translations in Korean and Chinese also lead to ungrammatical resultative structures (henceforth UUU). The resultatives of the next set are grammatical in English, but the analogues do not allow grammatical resultatives in Korean or Chinese (henceforth GUU). The final set contains the opposite scenario: the resultatives are ungrammatical in English, but can be grammatically expressed as resultatives in Korean and English (henceforth UGG).[3]

In each of the four sets, half of the tokens contained a verb that is normally considered transitive, and the other half intransitive verbs. As there were six resultatives in each set, three were transitive and three were intransitive. The target

[3] In these abbreviations for sentence types, the first G or U always refers to (un)grammaticality in English while the second and third G/U refer to Korean and Chinese, respectively. I designed the test so that the sentences were equivalent in Korean and Chinese in terms of grammaticality. Even though I analyze the results by language group, I will continue to include the labels indicating grammaticality in all three languages for ease of exposition.

sentences types are summarized schematically in the following table.

Sentence Type		N	English	Korean	Chinese
GGG	Trans	3	Grammatical	Grammatical	Grammatical
	Intrans	3			
UUU	Trans	3	Ungrammatical	Ungrammatical	Ungrammatical
	Intrans	3			
GUU	Trans	3	Grammatical	Ungrammatical	Ungrammatical
	Intrans	3			
UGG	Trans	3	Ungrammatical	Grammatical	Grammatical
	Intrans	3			

Table 1 Resultative Sentence Types Tested

The experiment also included as distractor sentences ungrammatical subject resultatives as well as grammatical and ungrammatical object depictives, subject depictives and attributive adjectives, for a total of 24 sentences. There was an equal balance of grammatical and ungrammatical sentences of each of these sentences types, except subject resultatives since these are simply not possible in English.

In constructing the test instrument, the question of grammaticality was not always completely straightforward. Some of the sentences chosen were taken from the existing literature; others relied on the experimenter's judgments in the case of English as well as consultation with native speakers for English, Korean and Chinese.[4]

5.3 Underlying issues and general research questions

The first general issue underlying this study relates to the initial state of second language (L2) acquisition. The assumption is that the whole of the native language (L1) grammar transfers such that it constitutes the starting point of L2 acquisition, in accordance with the first half of the Full Transfer/Full Access model (Schwartz & Sprouse 1996). This seemingly straightforward claim is complicated, however, by the complex nature of Language. In considering different aspects of language, some researchers have conceived of transfer of morphology as distinct from transfer of argument structure. In the last chapter I argued against such a distinction and for a view of Full Transfer that also includes transfer of the whole syntactic derivational process. The outcome is a view in which transfer of argument structure

[4] As will be discussed in the results section, the native speaker control group did not entirely agree with the experimenter's judgments.

does not stand in opposition to transfer of morphology.

The question, then, is whether support for this view of Full Transfer can be found experimentally by testing native Korean and Chinese speakers on their knowledge of the English resultative. If the resultative in the L1 implicates a structure-specific morpheme in the derivation, will that requirement transfer such that the Interlanguage (IL) of beginning learners does not allow resultatives at all as long as there is no analogous morpheme in the target language input? Or will the existence of a resultative-specific morpheme in the L1 be irrelevant so that instead the acceptance of resultatives in L2 English is based on the grammaticality of the particular verb-secondary predicate analogues in the L1? And, by the same token, if the learners have an L1 that does not implicate resultative-specific morphology, then will these beginning learners accept the construction based purely on the grammaticality of the L1 translations of each string that they hear?

A second issue addresses theoretical questions of morphology. In Chapter 3, I argued that there are three classes of morphology that are qualitatively different in terms of syntactic derivation, following the work of Emonds (2000). Accordingly, I distinguished between i) derivational morphemes that enter the derivation pre-syntactically, ii) mid-level morphemes which are inserted during the syntactic derivation in order for the derivation to proceed, and iii) post-syntactic morphemes which are required for grammaticality, but not for syntactic reasons and thus enter the derivation at PF.

More specifically, in Chapter 3 I argued that the functional morpheme that occurs in the Korean resultative construction is inserted late and not at deep structure. Additionally, I presented an analysis in which this morpheme enters the derivation at mid-level for one kind of resultative (intransitive resultatives), and is late inserted *after* syntactic derivation is complete for a second kind (transitive resultatives). Thus the question arises whether this difference might lead to different expectations in terms of effect on the L2 acquisition of resultatives.

Full Transfer predicts that the Interlanguage derivation of both types of resultative will include the respective morphological requirement. As such, the transfer of the mid-level morpheme will cause the Interlanguage to be unable to allow derivation to proceed in the absence of an analogous morpheme in the target language. Thus Korean learners are expected to reject all intransitive resultatives in English, at least initially. The question remains, however, whether there will be a

different result for transitive resultatives because these resultatives involve transfer of a post-syntactic morpheme. This question arises because of existing research in L2 acquisition that suggests that the suppliance of (post-syntactic) inflectional morphology does not reflect any deficiency in underlying competence, but instead reflects some kind of extra-syntactic mapping problem. If this is the case, is it possible that transfer of a post-syntactic morpheme is impervious to any kind of L1 interference because syntactic processing is possible without it?

The third general issue has to do with IL development. According to the second half of the Full Transfer/Full Access equation, there will be UG-constrained restructuring of the L2 learner's IL grammar, a process that is triggered by target language input. Thus, when learners hear resultatives in English that include a verb-secondary predicate combination which does not occur in the resultative of their L1, will this cause them to enter a stage in which they allow all resultatives because they have taken this input to be evidence that their L1-based lexical restrictions are not appropriate for the target language?

Such a developmental stage could arguably be seen as evidence of UG-constrained restructuring if UG-based language development is viewed as a process of underlying rule formation – a perspective generally accepted in L1 acquisition where children are known to over-apply new rules until they learn lexical exceptions. In the case of resultatives, the overgeneralized rule is that any complex noun-adjective predicate is possible with verbs that select result predicates. What has to be further learned is the more specific restriction that that adjective must instantiate the Feature [MAXIMAL ENDPOINT].

The alternative is that learners retain their L1-based patterns and simply expand the verb-adjective combinations that can occur in the resultative, based on the input. This kind of conservative learning would not be an instance of grammar restructuring, but instead reflect some learning strategy in which examples of verb-secondary predicate combinations are stored individually. As such, it is assumed that this kind of learned knowledge is stored as extra-linguistic memory, or, perhaps, is on par with idiom learning, and therefore stored in the lexicon. Either way, the assumption is that the learning is piecemeal as new resultative combinations are added to reflect the input.

A further question also relevant to IL development has to do with the aforementioned issue of types of morphology. Specifically, will transfer of all types of

functional morphemes result in an equivalent developmental outcome? In particular, if a morpheme is required in order for an L1 syntactic derivation to proceed and the lack of such a morpheme results in failure in the Interlanguage grammar, can this absence ever be overcome such that the underlying syntactic rules allowing for derivation without a morphological licensor can be acquired? And will this situation differ from one in which the morphological licensor is post-syntactic, i.e. required after syntactic derivation? In other words, is it reasonable to posit a strict autonomy of syntax, and might such a system work such that IL restructuring within the domain of syntactic derivation differs from that of linguistic processes outside the syntactic derivation itself? If so, it may be that transitive resultatives can be acquired by Korean speakers because the resultative morpheme is implicated after derivation while intransitive resultatives cannot because the syntactic derivation itself requires the morpheme. Results from Chinese speakers, by contrast, should not reflect any differences between the two types of resultative.

The final general issue to be addressed is relevant to the end state of L2 acquisition. While very advanced learners may make native-like judgments of resultatives, the question is whether these judgments reflect UG-constrained, grammatical rule based competence or a conservative strategy characterized by input-matching learning? The result crucial to differentiating between these two outcomes is the response to resultatives which are ungrammatical in English, but whose analogues are grammatical in the L1. If learners have acquired all the underlying rules of resultatives in English, arguably, they will know to reject these forms. If, however, they have used an input-matching strategy, they will have simply added licit English resultatives to their IL grammar, so there should be no reason why the resultatives which are possible in the L1, but not the L2, should be rejected. This, of course, assumes that any account of acquisition by indirect negative evidence is untenable, as convincingly argued by Pinker (1989). These general issues form the basis of the specific hypotheses outlined in the next section.

5.4 Specific hypotheses and expectations

Broadly speaking, there are two issues underlying this experiment, i) the question of transfer of morphology and ii) the nature of IL development. The possibilities regarding these two issues for each of the language groups that were tested give rise to multiple expectations. For ease of exposition, the hypotheses are

stated as idealized discrete stages. Note, however, that there is no expectation that the responses of each participant will conform to an exact stage. Instead, the results of any individual are expected to correspond to some identifiable point within the stages, reflecting Interlanguage development. The following sets of specific hypotheses and ensuing behavioral expectations are proposed for this experimental study of the L2 acquisition of English resultatives by native Korean and Chinese speakers.

1a. IL initial state hypothesis: Transfer of morphology. Transfer of structure-specific resultative morphology will initially cause Korean learners to reject all English resultatives because English does not include any morphology analogous to the Korean resultative morpheme, *-key*. The starting point for Chinese speakers, by contrast, is to accept only those English resultatives whose verb-secondary predicate combinations are possible in Chinese. These expectations are presented in Table 2.

L1 Korean speakers of low English proficiency	L1 Chinese speakers of low English proficiency
Accept: None	Accept: GGG, UGG
Reject: All	Reject: UUU, GUU

Table 2 Initial state expectations (Hypothesis 1a)[5]

1b. IL initial state counter hypothesis: No transfer of morphology. This first hypothesis will be refuted if there is no discernable difference between low-level Korean and Chinese learners of English. More specifically, if transfer of morphology is irrelevant, *both* Korean and Chinese learners will accept only those resultatives whose analogues occur in the L1.

L1 Korean and Chinese speakers of low English proficiency
Accept: GGG, UGG
Reject: UUU, GUU

Table 3 Initial state expectations (Counter Hypothesis 1b)

[5] As noted above, the abbreviations are as follows: GGG = grammatical in English, Korean and Chinese; UUU = ungrammatical in English, Korean/Chinese; GUU = grammatical in English, ungrammatical in Korean/Chinese; UGG = ungrammatical in English, grammatical in Korean/Chinese.

2a. IL development hypothesis: Transfer of morphology and conservative learning vs. input-driven overgeneralization. In the course of Interlanguage development, the Korean learners will respond to target language resultatives by employing an input-matching conservative learning strategy. Accordingly, instead of rejecting all resultatives in English because of the lack of analogous morphology, they will begin to accept the resultative combinations that they hear in the input on a one-by-one basis, regardless of the lack of resultative morphology in English.

The Chinese learners, by contrast, will move away from their L1-based initial state and into a stage of overgeneralization because the target language input indicates that the verb-secondary predicate restrictions in English are different from those in their L1. The Chinese will enter this input-driven stage of overgeneralization because they will have acquired the syntax underlying the English resultative, as well as the general rule that some verbs select complex result phrases; but they will not have acquired the lexical restrictions that rule out adjectives that aren't further specified for the Feature [MAX ENDPOINT]. The ensuing expectations are outlined in Table 4.

L1 Korean speakers of intermediate English proficiency	L1 Chinese speakers of intermediate English proficiency
Accept: (some) GGG, (some) GUU	Accept: All
Reject: UUU, UGG	Reject: None

Table 4: IL developmental expectations (Hypothesis 2a)

2b. IL development counter hypothesis: Transfer of morphology and overgeneralization vs. conservative learning. An alternative to the conservative learning strategy hypothesized for Koreans may arise if the input causes these learners to move from a position of restriction where they reject all English resultatives (because of the absence of resultative morphology) to over-acceptance because the existence of morphologically unmarked resultatives in the input causes IL restructuring such that all sentences with a complex noun – adjective predicate are acceptable (before the particular lexical restrictions have yet to be acquired).

The alternative for the Chinese learners is that the overgeneralization part of

this IL developmental hypothesis is refuted. Chinese learners may instead begin to accept the specific resultatives that the target language input indicates exist, in addition to the resultatives whose analogues are possible in Chinese. In other words, like in the primary hypothesis for the Koreans, these Chinese learners may employ an item-by-item strategy – but unlike the Korean case, they will begin to *add* English verb-secondary predicate combinations to the *already existing* store of resultatives whose analogues are acceptable in their L1 because they will not have had any reason to be restrictive initially. These counter expectations are outlined below.

L1 Korean speakers of intermediate English proficiency	L1 Chinese speakers of intermediate English proficiency
Accept: All	Accept: GGG, UGG, (some) GUU
Reject: None	Reject: UUU

Table 5: IL developmental expectations (Counter hypothesis 2b)

2c. IL development counter hypothesis: No transfer of morphology and conservative learning. If the initial state hypothesis is disconfirmed such that there is no difference between low level Koreans and Chinese that can be traced to morphology, and if the IL developmental hypothesis of overgeneralization is refuted, then learners from both language groups might accept those resultatives that the target language input indicates exist. In other words, in an intermediate stage, the learners might add English verb-secondary predicate combinations to the store of those resultatives whose analogues are acceptable in the L1. This alternative conservative learning expectation – if overgeneralization does not occur and if morphology is irrelevant – is outlined in the following table.

L1 Korean & Chinese speakers of intermediate English proficiency
Accept: GGG, UGG & (some) GUU
Reject: UUU

Table 6: IL developmental expectations (Counter hypothesis 2c)

2d. IL development counter hypothesis: No transfer of morphology and overgeneralization. There is one final logical possibility in this IL development stage in which there is no transfer of morphology, so Korean and Chinese learners acquire English resultatives in the same way (initially accepting only those whose analogues are grammatical in their native language, regardless of morphological facts). This possibility is that they restructure their IL grammar such that they broadly allow English resultatives with any complex noun, adjective result phrase; i.e. they enter a developmental stage of overgeneralization, because of licit resultatives in the target language input that contradict the lexical restrictions in their L1-based interlanguage. This final Interlanguage possibility is outlined in Table 7.

L1 Korean and Chinese speakers of intermediate English proficiency
Accept: all
Reject: none

Table 7: IL developmental expectations (Counter hypothesis 2d)

3a. End state hypothesis: Transfer of morphology, conservative learning and retreat from overgeneralization. The Chinese learners will eventually acquire the English resultative because these learners will retreat from overgeneralization when they acquire the lexical restrictions underlying the selection of the result phrase. Therefore, advanced Chinese learners of English will perform like native speakers in response to all resultatives tested.

For the Korean subjects, if the transfer of morphology hypotheses are supported, indicating that transfer of morphology continues to affect IL development such that Korean speakers learn the English resultative via a conservative input matching strategy, then advanced Korean learners are expected, in time, to accept only and all grammatical English resultatives. Notice that both developmental paths lead to the same expectations in terms of behavior for advanced Korean and Chinese learners of English.

L1 Korean and Chinese speakers of advanced English proficiency
Accept: GGG, GUU
Reject: UUU, UGG

Table 8: End state expectations (Hypothesis 3a)

3b. End state counter hypothesis: Transfer of morphology and retreat from overgeneralization vs. conservative learning. If the Korean learners override the transfer of morphology restrictive stage by overgeneralizing, then the ensuing end state expectation is that they will be able to retreat from overgeneralization such that they accept only licit English resultatives.

The counter hypothesis for the Chinese is that they continue the conservative learning strategy of the Interlanguage stage such that they eventually appear target-like with licit resultatives, but responses to *illicit* English resultatives will indicate that they still accept those resultatives whose analogues are possible in their native language. In other words, acceptance of illicit English resultatives signals continued transfer from the L1 coupled with an input-matching strategy. These counter expectations are given below.

L1 Korean speakers of advanced English proficiency	L1 Chinese speakers of advanced English proficiency
Accept: GGG, GUU	Accept: GGG, GUU, UGG
Reject: UUU, UGG	Reject: UUU

Table 9: End state expectations (Counter Hypothesis 3b)

3c. End state counter hypothesis: No transfer of morphology and conservative learning. The final set of end state counter hypotheses specify the end state from a developmental path that began without transfer of morphology. In this scenario, the two language groups are expected to respond equivalently because morphological differences between the L1s are irrelevant. Thus, following on from the Interlanguage stage in which learners begin to add licit English resultatives to the existing store of resultatives transferred from the L1, this end state counter hypothesis expects both sets of learners to eventually respond in a target-like fashion to licit English

resultatives – but to still also allow illicit English resultatives whose analogues are possible in the native language. This expectation is outlined in Table 10.

L1 Korean and Chinese speakers of advanced English proficiency
Accept: GGG, GUU, UGG
Reject: UUU

Table 10 End state expectations
(Counter Hypothesis 3c)

3d. End state counter hypothesis: No transfer of morphology and retreat from overgeneralization. Finally, if morphology from the L1 is irrelevant, the last possible end state counter expectation for both sets of learners finishes out the interlanguage developmental path in which the learners entered a stage of input-driven overgeneralization. This end state counter hypothesis is that the lexical restrictions on the English resultative would be eventually acquired such that both groups have a native-like grammar, correctly accepting licit English resultatives, and correctly rejecting illicit ones. This is outlined below.

L1 Korean and Chinese speakers of advanced English proficiency
Accept: GGG, GUU
Reject: UUU, UGG

Table 11: End state expectations
(Counter Hypothesis 3d)

Summary: Hypotheses 1 - 3 in terms of developmental trends. The hypotheses so far have been presented as discrete idealized stages. But because the actual results of the experiment are more likely to correspond to some point within the developmental stages, the expectations ought to be seen in terms of a trend from initial state through Interlanguage development and eventually to end state. The trends including all of the expectations are combined in Table 12 and Table 13. Table 12 shows development from a starting point in which there is transfer of morphology, while Table 13 outlines the opposing no transfer of morphology position. The most basic question, therefore, is whether there will be qualitative differences between the developmental patterns of

Transfer of Morphology	Initial State Expectations		IL Development Expectations		End State Expectations	
Korean: Transfer of morpheme	L1-based response (Hyp. 1a)	Accept: None Reject: All	Conservative Learning (Hyp. 2a)	Accept: (some) GGG, (some) GUU Reject: UUU, UGG	Conservative Learning (Hyp. 3a)	Accept: GGG, GUU Reject: UUU, UGG
			Overgeneralization (Hyp. 2b)	Accept: All Reject: None	Retreat from Overgeneralization (Hyp. 3b)	
Chinese: No morpheme to transfer	L1-based response (Hyp. 1a)	Accept: GGG, UGG Reject: UUU, GUU	Conservative Learning (Hyp. 2b)	Accept: GGG, UGG, (some) GUU Reject: UUU	Conservative Learning (Hyp. 3b)	Accept: GGG, UGG, GUU Reject: UUU
			Overgeneralization (Hyp. 2a)	Accept: All Reject: None	Retreat from Overgeneralization (Hyp. 3a)	Accept: GGG, GUU Reject: UUU, UGG

Table 12 Expected Developmental Trends with Transfer of Morphology[6]

No Transfer of Morphology	Initial State Expectations		IL Development Expectations		End State Expectations	
Korean & Chinese	L1-based response (Hyp. 1b)	Accept: GGG, UGG Reject: UUU, GUU	Conservative Learning (Hyp. 2c)	Accept: GGG, UGG, (some) GUU Reject: UUU	Conservative Learning (Hyp. 3c)	Accept: GGG, UGG, GUU Reject: UUU
			Overgeneralization (Hyp. 2d)	Accept: All Reject: None	Retreat from Overgeneralization (Hyp. 3d)	Accept: GGG, GUU Reject: UUU, UGG

Table 13 Expected Developmental Trends with No Transfer of Morphology

[6] The shaded areas indicate the expected developmental trends for the primary hypotheses.

Koreans learners of English, on the one hand, and Chinese learners of English, on the other.

The primary set of hypotheses (1a, 2a & 3a) all assume that structure-specific morphology transfers to affect the L2 acquisition of the English resultative. Accordingly, Korean speakers of low English proficiency are expected to initially reject all resultatives. When they begin to hear morphologically unmarked resultatives in the input, they will begin to add these on a one-by-one basis until finally exhibiting target-like acceptance. Chinese speakers, by contrast, are expected to initially accept only those resultatives whose analogues are licit in Chinese. From this L1-based initial state, they will then overgeneralize to accept all resultatives because of input that indicates differences between the target language and the L1, before acquiring the restrictions that allow them to rule out the illicit English resultatives. The expected trends for the primary hypotheses are shaded in Table 12. Notice that while the end state expectations are the same in terms of behavior, Koreans are expected to begin to appear target-like at a lower level of proficiency than their Chinese counterparts.

Within the basic hypothesis that morphology transfers to affect L2 acquisition, there are different possible routes for learners depending on the developmental issues of conservative learning versus overgeneralization. The expectations corresponding to these counter hypotheses (2b & 3b) are shown in the non-shaded parts of Table 12.

The counter hypothesis to the primary hypothesis of transfer of morphology is that there will be no difference between the two language groups because morphological differences are irrelevant in L1 transfer (Hypothesis 1b). This difference in starting point then leads to different sets of expectations for Interlanguage development, again differing in terms of whether IL development is characterized by conservative learning or overgeneralization (Hypotheses 2c & d, and 3c & d). The possibilities for this second route of IL development are outlined in Table 13.

4. Types of morphology hypothesis. If there is a qualitative difference between the Korean resultative *-key* morpheme of intransitive and transitive resultative structures, and if this difference means that transfer of the Korean intransitive and transitive resultatives will result in differences, then responses to intransitive vs. transitive English resultatives by Korean native speakers should differ. There should be no such

difference, by contrast, in the responses of the Chinese speakers. This hypothesis will not be supported, however, if there is no discernible difference in the responses to transitive vs. intransitive English resultatives by Korean speakers.

The exact expectation may differ at different stages of development, depending on the interaction of transfer of the transitive/intransitive syntactic derivations and Interlanguage development. In general, however, Korean speakers would be expected to have more difficulty in acquiring Intransitive resultatives than Transitive resultatives because it is the Korean Intransitive that implicates the construction-specific morpheme in the syntactic derivation. For the sake of clarity, the stated expectation will abstract away from developmental differences, saving more detailed discussion for the analysis of results, if appropriate. The general expectation is given in Table 14.

<table>
<tr><th>L1 Korean speakers of English</th><th>L1 Chinese speakers of English</th></tr>
<tr><td>Acquisition of Transitive Resultatives</td><td rowspan="2">No discernable difference between Transitive & Intransitive Resultatives</td></tr>
<tr><td>Failure to acquire Intransitive Resultatives</td></tr>
</table>

Table 14 Transitive vs. Intransitive expectations (Hypothesis 4)

5.5 Methodology

The test instrument was made up of two tasks: a judgment task and a cloze test. Each will be described in turn in the next two subsections. In addition to these two tasks, I asked the subjects for (anonymous) biographical details, which will be discussed after the presentation of the experimental tasks. And in line with the ethics procedure of the University of Durham, each subject signed a consent form that was kept separate from their responses to the experiment. The entire experiment took one hour to complete.

5.5.1 Judgment task[7]

As shown in Table 1 above, there were 8 types of English resultatives tested,

[7] This task was pilot tested twice, firstly with 18 Japanese learners of English and later with 20 Hong Kong Chinese students.

varying in terms of transitivity and grammaticality across the three languages. As there were 3 tokens of each of the 8 types, the total number of resultatives tested was 24. Additionally, there were 6 subject resultatives, 12 depictives, and 6 sentences containing attributive adjectives, yielding a total number of 48 test sentences.

The judgment task itself consisted of a continuous story broken into short segments of 3 to 5 sentences. (The entire test instrument is included in Appendix D.) After each segment, the subjects were given two test sentences, one at a time, to judge. Both the ongoing story and the test sentences were read aloud once by a native speaker, and the text was presented visually on an Overhead Projector as well. While the time given for each segment was roughly the same, I did monitor the subjects, giving time to any subject who seemed to need more time to make a judgment.

There were 24 story segments in total.[8] In each sentence pair, one sentence was a target sentence, viz. a resultative sentence, and the other contained either an attributive adjective, an object depictive, a subject depictive or a subject resultative.

(11) a. Mary washed the dishes clean.
b. Mary washed the dishes tired.

In half of the sentence pairs, the resultative was given first. Additionally, the sentence types were distributed randomly across the task.[9]

The subjects were asked to determine the naturalness of the sentences using the following Likert scale:

-3 = very unnatural/impossible
-2 = unnatural/impossible
-1 = somewhat unnatural/impossible
1 = almost natural/possible
2 = natural/possible
3 = very natural/possible

The value of zero was not an option on the answer sheet. But there was a 'Don't know' option, given as a separate choice outside the six-point scale.

Before giving the judgment task, I gave detailed instructions using four contextualized example sets for illustration. In the first example set, the sentences to

[8] The decision to present two sentences in each story break was taken purely in order to reduce the time required to complete the task.
[9] Notice that I did not devise two versions of the task with different orders, as is standard practice, because doing so would have required two different accompanying stories. I decided that in addition to the logistical difficulty of devising and administering two tasks, the added variable of different context would negate any benefit derived from having two orders.

be judged were both ungrammatical.

(12) a. * Fred on the table flowers put.
b. * Flowers put on the table Fred.

I used this example set to highlight what was meant by 'unnatural'. And I briefly discussed the idea that while two sentences may be unnatural, such judgments are relative and they may find some sentences more unnatural than others. I also pointed out in this first example that even though they were going to see two sentences for each segment, they should judge each sentence separately and not compare them in any way. I explained that I was giving them two sentences solely for the sake of efficiency.

In the second example set, the sentences were both grammatical, but the first sentence did not match the accompanying story in terms of interpretation. Through this example, I instructed the subjects to judge the sentences based on the context provided, thereby illustrating what was meant by '(im)possible'. The rationale for diverting their attention to interpretation and away from grammaticality is threefold. Firstly, I hoped to distract them from focusing too much on form. If they found the sentences possible in terms of interpretation but still rejected them because of grammaticality, this would provide a more robust indication of their rejection of the sentence in question. Secondly, I wanted the subjects to think about meaning to reinforce the particular interpretation each test sentence was intended to test. This is because some sentences can be ambiguous between resultative and depictive interpretations. And thirdly, I wanted to leave open the possibility that nonnative speakers of English may assign an incorrect interpretation to a resultative or depictive sentence. If, for example, a subject interpreted *John painted the house red* to mean *John painted the red house*, this might have an effect on their results.

In the third example, the two sentences were identical in meaning, but different in form. I wanted to make the point that even though a sentence might have a different and possibly *more* natural alternative, if it is still natural and possible, it should be given a positive number. This example also served as a basis for instruction on issues of standard versus dialectal or colloquial English. A number of nonnative test subjects judged one of the sentences in this pair unnatural, contrary to the desired judgment, because they objected to the colloquial nature of the sentence. The sentence in question was passive, using *got* instead of *was* (*Tony got kicked in the leg*). I

pointed out that even though a sentence may not be what they might consider standard or correct written English, if it still sounded natural, even if only in spoken English, then they should judge it acceptable. And again I emphasized that they were not being asked to compare the two sentences.

In the final example, I used a verb that was assumed to be unfamiliar, the word *to loid.*[10] Though both of the sentences were grammatical, one used the verb *loid.* The subjects were told that if they did not know the meaning of any word in any sentence they were judging, they should choose the 'Don't know' option on the answer sheet. Additionally, I told them that I would prefer that they choose 'Don't know' instead of guessing even if they could figure out the meaning based on the context. The reason for this is that I am interested in testing their knowledge of any lexical restrictions. If a word is new to them, it is unlikely that they would know its lexical restrictions. And as a last point, I told them that when they were making a judgment about a sentence, they shouldn't spend too much time thinking about it, but instead decide quickly and trust their first impressions.

After these instructions, I also went through four sets of Practice Examples with a total of eight sentences. No instruction was given during the Practice Examples; however, I answered any questions that were raised.

5.5.2 Cloze test

The cloze task was designed to measure English proficiency. It was given at the end of the experiment. As it was a difficult task (even for native speakers), I decided to impose a time limit of ten minutes so that all subjects had the same amount of time to attempt the task. I did this to try to eliminate differences between those who were willing to persevere and those who were not. The task was a fill-in-the-blank exercise much like those used by other second language acquisition researchers (Montrul 1997; Slabakova 2001). The passage was taken from Gairns and Redman (1996), an English Language course book. The first 11 words were supplied; every 6th word thereafter was deleted.[11] There was a total of 40 blanks. The subjects were instructed to fill each blank with one and only one word.

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[10] According to the *Random House Dictionary* (1980), loid is slang meaning 'to open (a door) by sliding a thin piece of celluloid or plastic along the door edge to open a spring lock' (p. 518).
[11] Montrul (1997) and Slabakova (1997) left the first full sentence intact.

The reason for the cloze test was to have a measure which would allow me to compare the nonnative subjects' in terms of English proficiency. The scoring of the cloze test closely follows the procedures of Slabakova (2001). Accordingly, each blank that was filled with the exact word deleted from the original text was given one point. If the blank was left empty or filled with any word other than the exact match, it was not given a point. Though the total number of blanks in the cloze test was 40, even native speakers are not expected to receive perfect scores because of the exact match criterion used. Thus, the responses from the native English control group were used as a benchmark for determining the level of proficiency of the Korean and Chinese speakers of English.

5.6 Participants and assessment of proficiency

The participants in the experiment were either students or spouses of students at the University of Durham or the University of Northumbria, both situated in the North East of England. All subjects participated on a purely voluntary basis. The 19 native English respondents were mostly undergraduates at the University of Durham, though a few were postgraduates. All were speakers of British English and ranged in age from 19 to 33; the average age was 22. The average age of the 14 Korean native speakers was 30, and the range was 24 to 37. There were 32 native Mandarin Chinese speakers, with an average age of 24 in a range of 18 to 32. Thus, in terms of age and level of education, the participants in all language groups were largely comparable.

The nonnative English groups were also relatively homogenous in terms of type of English instruction they had been exposed to in their home countries. All were introduced to English in state schools either at the late primary or early secondary level, thus receiving instruction for about six years. Many report that this English instruction was very much text-based with little spoken input and virtually no native spoken input. Additionally, English instruction at this level was limited to a few hours per week. Some learners received further English instruction at the university level in their home countries.[12] These details are given in Table 15 and Table 16.

[12] A few also reported attending English cram schools in their home countries.

L1 Korean Subjects	Proficiency Score	Age at time of testing	Study in the UK	Time living in the UK	English study in native country
Subject 6	3	30	1;6 yrs		6 yrs
Subject 1	4	34	0	7 yrs	6 yrs
Subject 2	5	34	0	1 yr	6 yrs
Subject 7	5	31	4 months		6 yrs
Subject 10	5	31	0	3 months	6 yrs
Subject 13	5	26	2 months		6 yrs
Subject 3	7	30	0	2;2 yrs	10 yrs
Subject 11	8	30	3 months		6 yrs
Subject 12	8	32	1 yr		8 yrs
Subject 14	8	24	1 month	2 months	11 yrs
Subject 5	12	23	2;7 yrs		9 yrs
Subject 8	12	30	2;6 yrs		11 yrs
Subject 4	17	25	6 months		10 yrs
Subject 9	18	37	5 yrs	8 yrs	6 yrs

Table 15 L1 Korean Subject Details

Also shown in these tables is the length of time each subject has spent in the UK as well as the amount of time that each subject has spent studying abroad. For most subjects these two are the same. The exceptions are those who have come to the UK as spouses of students. The proficiency scores for each nonnative English subject are also listed in Table 15 and Table 16. The range of scores for the native English speakers was 20 to 31, with a mean of 26.63

Interestingly, even though I used a different text, my results are very similar to those of Slabakova, whose native speakers' scores ranged from 21 to 31, with a mean of 26.06. I therefore decided to use her procedures for categorizing the nonnative speakers as the basis for grouping my subjects. Accordingly, any nonnative English speaker with a score equaling the lowest native speaker score of 20 would be considered advanced. Yet none of the 32 Chinese or 14 Korean speakers in my study achieved this score. The next category, labeled High Intermediate by Slabakova, was made up of subjects who achieved a score between 14 and 20. Of my participants, only 2 Korean and 6 Chinese speakers achieved scores in this range. For Slabakova, anyone receiving a score of 13 or less was deemed to be of low proficiency. She points out that this division is seemingly arbitrary, but is able to justify her categories statistically by performing a regression test.

L1 Chinese Subjects	Proficiency Score	Age at time of testing	Study in the UK	Time living in the UK	English study in native country
Subject 19	1	27	2 months		9 yrs
Subject 6	2	24	1 yr		5 yrs
Subject 11	2	20	6 months		6 yrs
Subject 15	2	22	2 months		6 yrs
Subject 5	3	20	1 yr		5 yrs
Subject 8	3	19	7 months		7 yrs
Subject 12	3	20	6 months		3 yrs
Subject 14	3	18	1 month	1 yr	3 yrs
Subject 17	3	21	6 months		9 yrs
Subject 1	4	21	2 months		7 yrs
Subject 7	4	22	5 months		8 yrs
Subject 10	4	25	7 months		6 yrs
Subject 13	4	20	7 months		6 yrs
Subject 18	4	23	3 months		3 yrs
Subject 4	6	22	1 yr	2 yrs	6 yrs
Subject 3	7	23	2 months		6 yrs
Subject 16	7	22	6 months		9 yrs
Subject 2	8	26	2 months		8 yrs
Subject 9	8	21	1;6 yrs		6 yrs
Subject 28	8	29	7 months		7 yrs
Subject 27	10	27	6 months		10 yrs
Subject 20	11	22	5 months		6 yrs
Subject 30	11	24	1;6 yrs		6 yrs
Subject 26	12	24	8 months		6 yrs
Subject 25	13	24	8 months		6 yrs
Subject 31	13	28	2 yrs	3 yrs	12 yrs
Subject 29	14	24	1;6 yrs		6 yrs
Subject 24	15	23	6 months		7 yrs
Subject 21	16	30	5 months		10 yrs
Subject 22	16	28	4 months		7 yrs
Subject 23	16	22	1 yr		13 yrs
Subject 32	17	27	6 months		10 yrs

Table 16 L1 Chinese Subject Details

If I followed Slabakova exactly, the scoring would leave 12 Korean speakers and 26 Chinese speakers in the low range. But because I am interested in looking at a developmental trend, I decided to further divide the lower group into two groups, using the mid-point score of 7 as the cutoff point. This leaves 6 Korean speakers in the middle range with scores ranging from 7 to12 and a mean of 9.17, and 6 Korean speakers in the lowest group with a range of 3 to 5, and a mean of 4.5. Similarly, the subdivided Chinese group has 11 subjects in the middle with a range of 7 to 13 and mean of 9.82 and the lowest Chinese group contains 15 subjects, with a range from 1

to 6 and a mean of 3.2. The groups and proficiency levels are summarized in Table 17.

Subject Groups	Number	Mean	Score Range
L1 English Controls	19	23.63	20-31
L1 Korean High	2	17.5	17-18
L1 Korean Mid	6	9.17	7-12
L1 Korean Low	6	4.5	3-5
L1 Chinese High	6	15.67	14-17
L1 Chinese Mid	11	9.82	7-13
L1 Chinese Low	15	3.2	1-6

Table 17 Results of the cloze test

5.7 Results

The responses to the resultatives will be discussed in terms of the different sentence types. Recall that the resultative test items differ in terms of grammaticality across the three languages. For ease of exposition, the four basic sets are repeated here.

Sentence Type		N[13]	English	Korean	Chinese
GGG	**Trans**	2	Grammatical		
	Intrans	0			
UUU	**Trans**	3	Ungrammatical		
	Intrans	3			
GUU	**Trans**	1	Grammatical	Ungrammatical	
	Intrans	3			
UGG	**Trans**	3	Ungrammatical	Grammatical	
	Intrans	3			

The results of the native English control group will be presented first. This will be followed by the overall results of the nonnative English subjects, presented firstly in terms of whether the groups differ in a way that can be attributed to the differences in morphology. The results are then analyzed in terms of the expected developmental trends for each language group, as outlined in the hypotheses section above. This analysis will be followed by a breakdown of the results in terms of transitive vs. intransitive resultatives. All of the results will receive further discussion in the next chapter when the implications of the results are discussed in terms of the ideas set forward in the first half of this thesis.

[13] The reason for the difference in number of tokens is explained in the next section.

5.7.1 Results of the native English control group

As is standard practice, this L2 study included a group of native speaker controls who took the experiment in the exact same format as the nonnative speakers. The native speakers were expected to accept the 12 resultative sentences that were considered acceptable in English (GGG, GUU) and to reject the 12 resultatives that were not (UUU, UGG). Unfortunately, however, the native speakers judged six of the 'grammatical' resultatives as unacceptable.

The acceptance rates of the native speakers for each sentence tested are given in Table 18. Throughout the analysis of results, all positive responses (1 to 3) were considered 'acceptance' and all negative responses (-1 to -3) 'rejection.'

Test Sentence			Number of Subjects Who Accept[14]	Acceptance Rate	Conforms to Expectation
GGG	Transitive	1	15 of 18	83.3 %	Yes
		2	19 of 19	100%	Yes
		3	9 of 19	47.4%	No
	Intransitive	1	4 of 19	21.1%	No
		2	2 of 19	10.5%	No
		3	5 of 18	27.8%	No
UUU	Transitive	1	4 of 19	21.1%	Yes
		2	0 of 18	0 %	Yes
		3	1 of 18	5.6%	Yes
	Intransitive	1	3 of 19	15.8%	Yes
		2	1 of 19	5.3%	Yes
		3	0 of 19	0 %	Yes
GUU	Transitive	1	2 of 19	10.5%	No
		2	19 of 19	100%	Yes
		3	1 of 19	5.3%	No
	Intransitive	1	15 of 18	83.3 %	Yes
		2	19 of 19	100 %	Yes
		3	19 of 19	100%	Yes
UGG	Transitive	1	0 of 19	0 %	Yes
		2	1 of 18	5.6%	Yes
		3	0 of 19	0 %	Yes
	Intransitive	1	0 of 19	0 %	Yes
		2	0 of 19	0 %	Yes
		3	5 of 19	26.3%	Yes

Table 18 Native Speaker Acceptance Rates by Test Item

[14] The total number of subjects varies because any subject who chose the 'don't know' option has been excluded from the total on an item-by-item basis.

The 6 resultatives that were unexpectedly rejected are given in (10).

(13) a.	Mary smashed the black pepper fine.	GGG Transitive 3
b.	Mary ran her feet sore.	GGG Intransitive 1
c.	Mary danced her shoes worn.	GGG Intransitive 2
d.	The rooster crowed Mary awake.	GGG Intransitive 3
e.	Mary watered the flowers flat.	GUU Transitive 1
f.	The hot coals burned Carl's feet blistered.	GUU Transitive 3

The six problematic sentences have been removed from further analysis because they were deemed ungrammatical by the native English control group. Though this is regrettable, it still leaves 6 grammatical tokens in English for analysis: 3 transitive and 3 intransitive. The remaining 18 target sentences were judged as expected in terms of grammaticality.

In these and subsequent results, a rate of 66% will be considered acceptance within each set of sentences. With the two sets of sentences for which there are 6 tokens (Sets UUU and UGG), the acceptance rate, therefore, is 4 of 6 tokens. For the GGG set, the fact that there are only 2 tokens means that both of the sentences have to receive a positive number in order to qualify as accepted. For the remaining set, GUU, the acceptance rate is 3 of the 4 tokens. The total number of tokens for a given set may differ for any individual, however, if a subject chose 'don't know' as a response. In such case, a strict 66% acceptance rate will be followed. Similarly, subjects are deemed to have rejected resultatives if they reject more than a third of the total number of resultatives sentences. Specifically, any acceptance rate of 33% or less is considered rejection.

5.7.2 A comparison of the Korean and Chinese learners of English

As the most general question underlying this study is whether the two language groups will differ because of the morphological facts in their corresponding native languages, we will begin by considering the two language groups as a whole to see if there is any overall contrast. The expected difference is that at the start of the developmental process, Koreans will disallow all English resultatives because of transfer of morphology while the Chinese will not, accepting instead those test items whose L1 analogues form possible resultatives. Thus we will first look to see whether Koreans, but not Chinese, tend to reject resultatives regardless of whether they are possible in the L1 and/or target language. The problem arises, however, that this

difference is expected to show itself at initial state. In time, target language input is expected to cause restructuring of the learners' grammars. Thus we are especially interested in the results of the subjects of lower proficiency. We must keep in mind, however, that though some of the subjects scored quite low on the proficiency test, none of them can be said to be at the initial state.

To see if there were subjects who were particularly restrictive in their response to resultatives, a combined acceptance rate for all the sentences was calculated and can be found for each Korean participant in Table 19 and each Chinese participant in Table 20. The subjects are ordered in terms of their relative scores on the proficiency test.

L1 Korean Subjects	Proficiency Score	Total Number Accepted	Total Number of Tokens	Acceptance Rate (%)
Subject 6	3	12	18	66.7%
Subject 1	**4**	**5**	**18**	**27.8%**
Subject 2	5	11	16	68.8%
Subject 7	**5**	**5**	**18**	**27.8%**
Subject 10	5	9	16	56.3%
Subject 13	5	11	17	64.7%
Subject 3	7	9	18	50.0%
Subject 11	8	9	18	50.0%
Subject 12	8	8	18	44.4%
Subject 14	8	9	17	52.9%
Subject 5	**12**	**3**	**18**	**16.7%**
Subject 8	**12**	**2**	**18**	**11.1%**
Subject 4	17	13	18	72.2%
Subject 9	18	8	18	44.4%

Table 19: Overall Acceptance Rates by Individual Korean Subjects

Applying the standard of 33% or less acceptance, 4 of the 14 Korean subjects can be said to exhibit restrictive behavior (Subjects 1, 7, 5 and 8). This contrasts with the Chinese results which show that only 1 of the 32 Chinese subjects (Subject 29) is restrictive. In terms of percentage, that's a difference of 28.6% of the Korean subjects versus 3.1% of the Chinese. Though neither rate is very high, considering the fact that none of the subjects are at initial state, a rate of 28.6% for Koreans does seem to suggest a difference between the two populations, especially as this rate includes resultatives that are licit in English as well as resultatives whose analogues are possible in the learners' L1s.[15]

[15] The fact that these four subjects do not all have relatively low proficiency scores is curious.

L1 Chinese Subjects	Proficiency Score	Total Number Accepted	Total Number of Tokens	Acceptance Rate (%)
Subject 19	1	9	17	52.9%
Subject 6	2	7	17	41.2%
Subject 11	2	6	14	42.9%
Subject 15	2	14	17	82.4%
Subject 5	3	12	17	70.6%
Subject 8	3	7	13	53.8%
Subject 12	3	7	14	50.0%
Subject 14	3	6	18	33.3%
Subject 17	3	5	13	38.5%
Subject 1	4	9	17	52.9%
Subject 7	4	12	16	75.0%
Subject 10	4	8	15	53.3%
Subject 13	4	6	16	37.5%
Subject 18	4	7	16	43.8%
Subject 4	6	7	16	43.8%
Subject 3	7	11	18	61.1%
Subject 16	7	8	17	47.1%
Subject 2	8	8	17	47.1%
Subject 9	8	13	17	76.5%
Subject 28	8	8	17	47.1%
Subject 27	10	15	16	93.8%
Subject 20	11	10	17	58.8%
Subject 30	11	8	16	50.0%
Subject 26	12	8	18	44.4%
Subject 25	13	9	17	52.9%
Subject 31	13	6	17	35.3%
Subject 29	**14**	**3**	**17**	**17.6%**
Subject 24	15	7	18	38.9%
Subject 21	16	7	18	38.9%
Subject 22	16	8	16	50.0%
Subject 23	16	9	17	52.9%
Subject 32	17	8	18	44.4%

Table 20: Overall Acceptance Rates by Individual Chinese Subjects

The other difference expected between the two language groups is developmental. If IL development is characterized by conservative learning, then Korean learners may be expected to move from a stage of restrictive behavior to gradually adding only licit resultatives as indicated in the input. Chinese learners, by contrast, are expected to continuously accept resultatives whose analogues are grammatical in the L1 and also add licit English resultatives. As this difference also depends on the added question of interlanguage development, I will leave it for the discussion in the next two subsections where each subjects' responses to each type of

sentence will be looked at in more detail.

Thus, I conclude this subsection by claiming that in comparison with the Chinese, the relatively high percentage of Korean subjects who reject resultatives in English regardless of whether they are licit in the L1 or the target language suggests a divergence between the two groups that may be attributed to the differences in their L1s in terms of morphology. With this basic difference in mind, we now turn to the results of each language group in more detail, exploring the developmental question of conservative learning versus overgeneralization.

5.7.3 Results of the native Korean learners of English

Like all the results discussed so far, individual results and not group results will be discussed in this next subsection. The primary reason for this is that the proposed hypotheses span the entire developmental range – from initial state to end state, with different expectations at every step of the way. Such specific expectations are easily obscured by group results. A second reason is that the proficiency range of the nonnative speakers was not as wide as it could have been. Recall that even though I divided them into low, medium and high groups, they all still fell within the 'intermediate' range, at least as defined by Slabakova's work. Any analysis by group will only be included if there are clear patterns among subsets of subjects that would justify any such presentation.

As discussed in the previous subsection, 4 of the 14 Korean subjects reject English resultatives at very high rates, allowing less than 33% of these test sentences. If we look at the responses to each type of sentence we find that an additional Korean speaker (Subject 12) also shows a degree of restrictive behavior, failing to achieve a 66% acceptance rate in response to any of the four sentence types (See Table 21). Thus, this subject (with an overall acceptance of 44.4%) will be classified with Subjects 1, 7, 5 and 8 as those who show restrictive behavior.

The counter hypothesis is that the resultative morpheme in Korean is not transferred in such a way that English resultatives are rejected. Instead, learners will accept and reject resultatives based on the grammaticality of analogues in the L1 irregardless of structure-specific morphology. Among the Korean subjects, there is only one subject who accepts only the GGG and UGG type sentences, indicating that there is transfer, but not of morphology. Subject 14 accepts both of the GGG tokens

and 4 of the 6 UGG tokens, but rejects the other two sentence types with the low acceptance

L1 Korean Subjects (Proficiency Score)	GGG Acceptance = 2 of 2	UUU Acceptance = 4 of 6	GUU Acceptance = 3 of 4	UGG Acceptance = 4 of 6	Overall Acceptance Rate
Subject 6 (3)	**2 of 2**	**5 of 6**	2 of 4	3 of 6	12/18 66.7%
Subject 1 (4)	0 of 2	2 of 6	2 of 4	1 of 6	5/18 27.8%
Subject 2 (5)	1 of 2	2 of 5	**4 of 4**	**4 of 5**	11/16 68.8%
Subject 7 (5)	**2 of 2**	1 of 6	0 of 4	2 of 6	5/18 27.8%
Subject 10 (5)	1 of 2	1 of 5	**3 of 4**	**4 of 5**	9/16 56.3%
Subject 13 (5)	**2 of 2**	2 of 6	**3 of 4**	**4 of 5**	11/17 64.7%
Subject 3 (7)	**2 of 2**	3 of 6	1 of 4	3 of 6	9/18 50.0%
Subject 11 (8)	1 of 2	1 of 6	2 of 4	**5 of 6**	9/18 50.0%
Subject 12 (8)	1 of 2	2 of 6	2 of 4	3 of 6	8/18 44.4%
Subject 14 (8)	**2 of 2**	1 of 5	2 of 4	**4 of 6**	9/17 52.9%
Subject 5 (12)	0 of 2	1 of 6	1 of 4	1 of 6	3/18 16.7%
Subject 8 (12)	1 of 2	0 of 6	0 of 4	1 of 6	2/18 11.1%
Subject 4 (17)	**2 of 2**	**5 of 6**	1 of 4	**5 of 6**	13/18 72.2%
Subject 9 (18)	**2 of 2**	0 of 6	**3 of 4**	3 of 6	8/18 44.4%

Table 21: Individual Korean Acceptance Rates by Sentence Type[16]

rates of 1 of 5 (UUU) and 2 of 4 (GUU). It may also be reasonable to see Subject 11 as also supporting this counter hypothesis, as s/he accepts (5 of 6) UGG sentences and 1 of the 2 GGG sentences. Thus, two of the Korean subjects can be said to support the counter hypothesis regarding transfer of morphology. Both of these subjects scored in the middle range among the learners in terms of proficiency (Score = 8), suggesting that they are not low-level speakers of English, yet their results still reflect an L1-based response pattern. It may be that the resultative is acquired relatively late.

The hypothesis concerning the developmental question addresses whether Korean learners will be conservative and thus add licit resultatives on an item-by-item basis beyond the initial stage, or whether they will overgeneralize to allow English resultatives more freely. If we assume an initial restrictive stage in which resultatives are systematically disallowed, the question then is whether some subjects have moved on to begin to allow licit English resultatives; in other words, do some subjects allow resultatives of the GGG and GUU types, but not the UUU or UGG types? Two subjects (Subjects 3 & 7) seem to follow this pattern: the only type of sentence to be accepted at a rate of 66% or higher is the GGG category, suggesting that these subjects are adding licit English resultatives to their grammar on an item-by-item

[16] The results that show acceptance at 66% or more are bolded.

basis.[17] And their relatively low proficiency scores (7 and 5, respectively) suggest that the interlanguage of these learners is still developing.

Looking at the developmental question from the counter initial stage position of no transfer of morphology, the conservative learning expectation is that learners would add licit English resultatives (GUU) to the existing store of resultatives that are possible in the L1 (GGG, UGG type). There is one subject who exhibits this conservative learning pattern: Subject 13. The relatively low score of 5 on the proficiency task supports the claim that this learner is in a relatively early stage of development. Thus in total, 3 of the 14 Korean subjects seem to show a conservative learning pattern – whether from the starting point of restrictive behavior or not.

In contrast to a conservative learning pattern, there are no Korean subjects who overgeneralize by accepting all four types of sentences at rates of 66% or higher. Yet the suggestion that there is no overgeneralization among the Korean subjects may be too strong. Just as we looked at overall rejection rates combining all sentence types, if we combine the sentence types to look for overall acceptance rates, there are, in fact, three subjects who accept English resultatives at overall rates of 66% or higher. These are Subjects 2, 4 and 6 with overall acceptance rates of 68.8%, 72.2% and 66.7%, respectively. While Subjects 2 and 6 have low proficiency scores of 5 and 3, Subject 4 achieved a surprisingly high score of 17. It is not clear why a subject of such relatively high proficiency would continue to overgeneralize this structure.

The final stage in the developmental trend is target-like behavior. Subject 9 is the only Korean subject to correctly accept licit English resultatives and correctly reject the illicit ones. As would be expected, this subject achieved the highest score on the proficiency task. This subject's end state could be seen as the culmination of a conservative learning pattern as licit resultatives are added one by one. Equally, however, it could be analyzed as retreat from overgeneralization. However, the fact that this subject accepts half of the UGG sentences suggests a retreat from overgeneralization developmental path.

In sum, the results of the Korean learners are somewhat mixed. Consider Table 22, which combines the individual Korean subjects with the specific expectations based on the hypotheses. All the Korean subjects are included in this

[17] Notice that in terms of overall acceptance rates, Subject 7 was classified as restrictive earlier based on the less than 30% criterion. This subject is considered to be moving to the higher developmental stage here, however, based on the analysis of results by sentence type.

Table except Subject 10, whose results do not conform to any clear pattern and will not be considered further.[18]

	Initial State	IL Development		End State	
Transfer of morpheme	L1-based response Accept: None Reject: All **Subjects: 1, 5, 8, 12**	Conservative Learning	Accept: (some) GGG, (some) GUU Reject: UUU, UGG **Subjects: 3, 7**	Conservative Learning	Target-like **Subject: 9**
		Overgeneralization	Accept: All Reject: None **Subjects: 2, 4, 6**	Retreat from Overgeneralization	
No transfer of morpheme	L1-based response Accept: GGG, UGG Reject: UUU, GUU **Subjects: 14, 11**	Conservative Learning	Accept: GGG, UGG, (some) GUU Reject: UUU **Subject: 13**	Conservative Learning	Accept: GGG, UGG, GUU Reject: UUU **Subject: 13**
		Overgeneralization	Accept: All Reject: None **Subjects: 2, 4, 6**	Retreat from Overgeneralization	Target-like **Subject: 9**

Table 22 L1 Korean Results in Terms of Expected Developmental Trends

As shown in the table, the results of ten Korean subjects (Subjects 1, 5, 8, 12, 3, 7, 2, 4, 6 & 9) can be seen to correspond to the expectations based on the hypothesis that functional morphology transfers to affect L2 acquisition. Yet at the same time, the results of seven Korean subjects (Subjects 14, 11, 13, 2, 4, 6 & 9) support the claim the morpheme has no effect. Notice, however, that some results are compatible with positions supporting both the general transfer of morphology hypothesis and the counter hypothesis. This is because the counterhypothesis expectation of overgeneralization is going to lead to the same expectations whether the starting point is restrictive behavior or not. Specifically, the overgeneralization of Subjects 2, 4 and 6, and the target-like behavior of Subject 9 cannot inform us on the general question of transfer of morphology. Arguably, therefore, they should be discounted when considering the transfer of morphology question. Thus, Table 22 shows us that the results of 6 of the 14 Korean subjects (42.9%) can only be interpreted as support for a transfer of morphology position, while the results of 3 of the 14 (21.4%) support the counter position in which morphology is not implicated. With 28.6% of the subjects (the four aforementioned subjects) disqualified from consideration, the overall

[18] Subject 10 accepted the GUU and UGG sentences while rejecting the GGG and UUU sentences.

conclusion is that most of the Korean results suggest that morphology transfers to affect the acquisition of the L2 English resultative.

In terms of the IL development question, there is no clear indication in these results whether development proceeds in a conservative manner or via some kind of overgeneralization. The results of three subjects suggest conservative learning (Subjects 3, 7 and 13) while three others suggest overgeneralization (Subjects 2, 4 and 6).

5.7.4 Results of the native Chinese learners of English

The basic assumption for the Chinese learners of English was that by Full Transfer, lower level learners would accept only those English resultatives whose analogues are possible in Chinese and that transfer of morphology is irrelevant. Thus, in terms of the sentence types that were tested, it was expected that learners of lower proficiency would accept the GGG and UGG type sentences and reject the UUU and GUU type sentences. The responses by Chinese individuals to each of the four types of sentences are given in Table 23. As shown in the table, there are three subjects who accept only those resultatives whose analogues occur in their native language (GGG and UGG sentences): Subjects 3, 5 and 22. Arguably, however, there are two more subjects who might also be seen to exhibit an L1-based response pattern; Subjects 8 and 25 accept the resultatives of the UGG type and they accept one of the two tokens of the GGG category. If we combine the two categories so that we have a total of 8 tokens between the two sentence types, Subject 8 accepts 6 of the 8 (75%) and Subject 25 accepts 5 of 8 (62.3%). In terms of proficiency Subjects 3, 5 and 8 scored between 3 and 7 on the cloze task, as we would expect for subjects showing evidence of Full Transfer; Subjects 22 and 25, however achieved the relatively high scores of 16 and 13, suggesting transfer effects even later in development.

In the next stage of development we asked whether these learners would begin to add licit English resultatives one by one, or whether they would overgeneralize. Starting from an L1-based initial state, a conservative learning pattern, then, would be to continue to accept resultatives of the GGG and UGG types but add GUU resultatives. Interestingly, none of the Chinese subjects exhibit this pattern. There are, by contrast, examples of subjects who show overgeneralization. We can see that Subjects 15 and 27 accept each of the four sets of resultatives at rates of 66% or higher. Additionally, if we look at the combined acceptance rates, Subjects 5, 7 and 9 all have overall rates of 66% of more. Notice that Subject 5's overall acceptance rate

L1 Chinese Subjects (Proficiency Score)	GGG Acceptance = 2 of 2	UUU Acceptance = 4 of 6	GUU Acceptance = 3 of 4	UGG Acceptance = 4 of 6	Overall Acceptance Rate	
Subject 1 (4)	**2 of 2**	3 of 6	1 of 4	3 of 5	9/17	52.9%
Subject 2 (8)	1 of 2	**4 of 6**	1 of 4	2 of 5	8/17	47.1%
Subject 3 (7)	**2 of 2**	3 of 6	1 of 4	**5 of 6**	11/18	61.1%
Subject 4 (6)	0 of 2	2 of 4	1 of 4	**4 of 6**	7/16	43.8%
Subject 5 (3)	**2 of 2**	3 of 5	2 of 4	**5 of 6**	12/17	70.6%
Subject 6 (2)	**2 of 2**	3 of 6	0 of 3	2 of 6	7/17	41.2%
Subject 7 (4)	1 of 2	3 of 5	**4 of 4**	**4 of 5**	12/16	75.0%
Subject 8 (3)	1 of 2	1 of 4	0 of 1	**5 of 6**	7/13	53.8%
Subject 9 (8)	**2 of 2**	**6 of 6**	**3 of 4**	2 of 5	13/17	76.5%
Subject 10 (4)	0 of 2	**4 of 6**	2 of 4	**2 of 3**	8/15	53.3%
Subject 11 (2)	1 of 2	3 of 6	0 of 2	2 of 4	6/14	42.9%
Subject 12 (3)	1 of 2	2 of 5	**3 of 4**	1 of 3	7/14	50.0%
Subject 13 (4)	1 of 2	1 of 5	2 of 4	2 of 5	6/16	37.5%
Subject 14 (3)	**2 of 2**	3 of 6	0 of 4	1 of 6	6/18	33.3%
Subject 15 (2)	**2 of 2**	**5 of 6**	**3 of 4**	**4 of 5**	14/17	82.4%
Subject 16 (7)	1 of 2	3 of 6	2 of 4	2 of 5	8/17	47.1%
Subject 17 (3)	1 of 2	2 of 5	2 of 4	0 of 2	5/13	38.5%
Subject 18 (4)	1 of 2	2 of 5	1 of 4	3 of 5	7/16	43.8%
Subject 19 (1)	**2 of 2**	3 of 6	2 of 4	2 of 5	9/17	52.9%
Subject 20 (11)	**2 of 2**	**4 of 6**	2 of 4	2 of 5	10/17	58.8%
Subject 21 (16)	**2 of 2**	1 of 6	2 of 4	2 of 6	7/18	38.9%
Subject 22 (16)	**1 of 1**	1 of 5	2 of 4	**4 of 6**	8/16	50.0%
Subject 23 (16)	1 of 2	3 of 6	**3 of 4**	2 of 5	9/17	52.9%
Subject 24 (15)	**2 of 2**	1 of 6	1 of 4	3 of 6	7/18	38.9%
Subject 25 (13)	1 of 2	2 of 5	2 of 4	**4 of 6**	9/17	52.9%
Subject 26 (12)	**2 of 2**	2 of 6	1 of 4	3 of 6	8/18	44.4%
Subject 27 (10)	**2 of 2**	**4 of 5**	**4 of 4**	**5 of 5**	15/16	93.8%
Subject 28 (8)	1 of 2	**4 of 6**	1 of 4	2 of 5	8/17	47.1%
Subject 29 (14)	1 of 2	1 of 6	0 of 4	1 of 5	3/17	17.6%
Subject 30 (11)	1 of 2	**4 of 6**	1 of 3	**3 of 4**	8/16	50.0%
Subject 31 (13)	1 of 2	3 of 6	1 of 4	1 of 5	6/17	35.3%
Subject 32 (17)	**2 of 2**	2 of 6	2 of 4	2 of 6	8/18	44.4%

Table 23 Individual Chinese Acceptance Rates by Sentence Type

suggests overgeneralization, but when considering the results on an individual category basis this subject qualifies as giving L1-based judgments as only the results of the GGG- and UGG-type sentences reach the 66% threshold. It may be that the results of this subject show variability between a stage of L1-based acceptance and overgeneralization. And these subjects' levels of proficiency range from the low score of 2 to the middling score of 10.

The final, end state assumption was that learners would continue a conservative learning pattern to accept licit English resultatives while continuing to

accept those resultatives that are possible in the native language. As already noted, none of the learners show a pattern of conservative learning at all. As for the end state hypothesized for the alternative overgeneralization pattern, it is somewhat surprising that there are also no learners who show evidence of retreat from overgeneralization such that they accept only the resultatives that are licit in English.

The original expectations for the Chinese learners are presented again in Table 24, along with the subjects who can be seen to exhibit the corresponding behavior.

<table>
<tr><th></th><th>Initial State</th><th colspan="2">IL Development</th><th colspan="2">End State</th></tr>
<tr><td rowspan="2">No transfer of morpheme</td><td rowspan="2">L1-based response

Accept: GGG, UGG
Reject: UUU, GUU
Subjects: 3, 5, 22, 8, 25</td><td>Conservative Learning</td><td>Accept: GGG, UGG, (some) GUU
Reject: UUU
Subjects: None</td><td>Conservative Learning</td><td>Accept: GGG, UGG, GUU
Reject: UUU
Subjects: None</td></tr>
<tr><td>Overgeneralization</td><td>Accept: All
Reject: None
Subjects: (5), 7, 9, 15, 27</td><td>Retreat from Overgeneralization</td><td>Target-like
Subjects: None</td></tr>
</table>

Table 24 L1 Chinese Results in Terms of Expected Developmental Trends

From this table, we can see that the total number of subjects who support the general hypothesis that transfer of morphology is irrelevant is only nine. Given the unexpectedly small number of subjects who conform to this general hypothesis, the question, then, is what do the other 23 Chinese speakers do?

Surprisingly, many of them can be seen to conform to the developmental pattern proposed for the native Korean learners of English. As mentioned before, only one subject shows restrictive behavior; Subject 29 accepts only 17.6% of the resultatives overall. However, if we look at the results on an individual category basis, we find six additional Chinese subjects who fail to accept any single set of sentences. Subjects 11, 13, 16, 17, 18 and 31 do not reach the 66% acceptance rate for any of the four sets even though their overall acceptance rates are higher than the stipulated 30% rate, ranging from 35.3% to 47.1%. Thus, these learners may be considered to exhibit somewhat restrictive behavior. And the proficiency scores of most of these subjects would suggest they have a relatively low level of English. Subjects 11, 13, 16, 17 and 18 received scores between 2 and 7. Subjects 31 and 29, however, managed to get scores of 13 and 14, respectively.

From the alternative starting point of restrictive behavior, then, the question is

whether some learners will support a conservative learning pattern by accepting only licit English resultatives. In fact, two subjects accept only the GUU type sentences (Subjects 12 and 23) while 8 subjects accept only the GGG sentences (Subjects 1, 6, 14, 19, 21, 24, 26 and 32).[19] Like the other groups of learners discussed so far, these ten subjects are also split in terms of those who have relatively low proficiency scores – five of them range from 1 to 4 – while the other half range from 12 to 17.

The other possibility from the starting point of restrictive behavior is that subjects will enter a stage of overgeneralization. As mentioned above, five subjects can be said to overgeneralize (Subjects 5, 7, 9, 15 and 27). Of course, it is impossible to know if this overgeneralization followed a restrictive stage or a stage in which learners accepted resultatives based on L1-analogues. And finally, as also noted above, none of the subjects seem to round out development by responding in a target-like fashion.

The particular Chinese subjects whose results support the hypothesis proposed for Korean learners of English, then are included in Table 25, which also outlines the specific expectations. As shown in this table, 22 of the 32 Chinese subjects (68.8%) exhibit behavior originally expected of L1 Korean learners of English.

<table>
<tr><th></th><th>Initial State</th><th colspan="2">IL Development</th><th colspan="2">End State</th></tr>
<tr><td rowspan="2">Transfer of morpheme (originally expected for Koreans)</td><td rowspan="2">L1-based response

Accept: None
Reject: All

Subjects: 29, 11, 13, 16, 17, 18 & 31</td><td>Conservative Learning</td><td>Accept: (some) GGG and/or (some) GUU
Reject: UUU, UGG
Subjects: 12, 23, 1, 6, 14, 19, 21, 24, 26 & 32</td><td>Conservative Learning</td><td rowspan="2">Target-like

Subjects: None</td></tr>
<tr><td>Overgenerali-zation</td><td>Accept: All
Reject: None
Subjects: (5), 7, 9, 15, 27</td><td>Retreat from Overgenerali-zation</td></tr>
</table>

Table 25 L1 Chinese Results in Terms of Developmental Trend Expected for Koreans

In sum, 9 of the 32 Chinese subjects confirm the hypothesis that transfer is irrelevant in acquisition of L2 English resultatives while 22 of the subjects exhibit the 'Korean' pattern. As the five subjects who overgeneralize can be seen to support

[19] Though there are only two tokens in this set, the relatively high number of Chinese subjects who accept only this set suggests it may indeed be a legitimate response pattern.

either side of the hypothesis, in total 4 Chinese support the 'no morphology' hypothesis and 17 support the 'transfer of morphology' hypothesis. This surprising result raises questions that will form the basis of the discussion in the next chapter. On a final note, this analysis of Chinese results leaves six subjects unaccounted for. The six show response rates that do not conform to any expected point in either hypothesized developmental trend. Therefore, they will not be considered further.[20]

5.7.5 Results in terms of transitive vs. intransitive resultatives

The final hypothesis addressed the question of acquisition of transitive vs. intransitive resultatives. In order to evaluate this proposal, the results in this section are first presented in terms of accuracy, instead of acceptance rates as in the previous sections, so that accuracy in response to transitive resultatives can be contrasted with accuracy on intransitive resultatives. To get an accuracy score, I first categorized responses into transitive and intransitives resultatives for each L2 English subject. Then for each of the two types, I did a count of total tokens. For each subject who gave a response to every sentence, the total number of tokens would be 9 for each type, transitive and intransitive. Any subject who chose the 'Don't know' option, however, has a lower number of total tokens. The next step was to evaluate each subject's responses. One point was given for every response that corresponded to the expectation in terms of grammaticality in English.[21] This gave a total number of accurate responses, which could then be divided by the number of tokens, leaving an accuracy score in percentages for each individual.

The results for each nonnative English subject are listed in Appendix E. A count of those subjects who were more accurate on transitive than intransitive resultatives reveals 9 of 14 (64.59%) Korean subjects and 17 of 32 (53.13%) Chinese subjects. Beyond accuracy, the results were also analyzed in terms of acquisition, using the same accuracy score of 66% or higher as indicating acquisition. In calculating 'acquisition,' grammatical sentences needed to be accepted and ungrammatical rejected. These results, given in Table 26, show that the overall percentage of Korean subjects who have acquired both transitive and intransitive

[20] The response patterns of these six are as follows: Subjects 2 and 28 accept UUU type sentences only; Subjects 10 and 30 accept UUU and UGG sentences; Subject 4 accepts UGG sentences only; and Subject 20 accepts only GGG and UUU type sentences.

[21] The problematic six sentences identified by the Native Control group were excluded from this analysis also.

resultatives is larger than the percentage of Chinese subjects. But with both language groups the transitive is acquired by more learners than the intransitive. Thus, judging by these results, it does not seem that the intransitive is any more difficult for Korean learners than for Chinese learners.

	Transitive Resultatives	**Intransitive Resultatives**
Korean Subjects	7 of 14 (50%)	3 of 14 (21.43%)
Chinese Subjects	10 of 32 (31.25%)	2 of 32 (6.25%)

Table 26 Number of subjects who have acquired the resultative

5.8 Conclusion

In this chapter I presented the results of an experimental study of the acquisition of the English resultative by native Korean and Chinese speakers. I asked questions of transfer, looking for empirical support for transfer of a morphological requirement in L2 acquisition. I also investigated questions of IL development, asking whether the pattern of development in the acquisition of the resultative might be characterized as one of conservative input-matching or rule-based overgeneralization. And finally, I put to the test the idea that qualitatively different types of morphology might have different effects in L2 acquisition.

The results indicate a measure of support for the claim that for native Korean speakers, structure-specific morphology transfers to affect the acquisition of English resultatives. Four of the 14 Korean native speakers have a tendency to reject English resultatives, as compared to only 1 of the 32 L1 Chinese speakers who is similarly restrictive. There does not, however, seem to be support for the proposal that there might be a difference in the ability of Korean learners to acquire transitive vs. intransitive resultatives. Additionally, beyond the general finding that Chinese speakers do not tend to reject English resultatives, the results of the native Chinese speakers do not reveal any clear patterns in terms of the expectations laid out in the hypotheses.

This absence suggests flaws in the experiment. Possible problems could be the theoretical premise regarding transfer, the experimental design or a misunderstanding

of the language facts. In the next chapter I will discuss these results in more detail exploring the possibility that the problem lies in my understanding of the resultative in Chinese. Further investigation reveals an alternative resultative construction in Chinese that also implicates functional morphology. The discussion of this second resultative will allow us to reevaluate the results further exploring the question of transfer of morphology.

Chapter Six Reanalysis and Discussion

6.0 Introduction

To better understand the inconclusive results of the experimental study reported in the last chapter, I have taken a closer look at the properties of resultative formation in Chinese. In doing so, it has become apparent that there is a second form that can be considered a resultative. Crucially, this form differs in that it contains a functional morpheme, *de*. In this chapter, I will explore this second resultative form (henceforth, the *de* resultative). I begin by presenting Zhang's (2001, 2003) syntactic analysis of both the *de* resultative and the morphologically simple resultative.

In light of this new understanding of the Chinese resultative, I then reconsider the L1 Chinese experimental results of the L2 acquisition of English resultatives presented in Chapter 5, conducting a reanalysis of the data. This reanalysis reveals a tendency among some Chinese learners to be restrictive in their responses, lending support for the claim of transfer of morphology. Secondly, the trend of overgeneralization noted in the original analysis remains a central finding in the reanalysis. This finding of overgeneralization gives rise to more general questions of Interlanguage development, yet such questions are left unresolved because the reanalysis leaves us with too few tokens to be able to look for developmental trends in the experimental study. We begin, however, by taking a closer look at the syntax of Mandarin Chinese.

6.1 Mandarin Chinese

When setting up the experiment I chose native speakers of Mandarin Chinese to contrast with Korean speakers because Chinese is considered a morphologically impoverished language and has a resultative structure that does not implicate any structure-specific functional morphology.[1]

(1) a. Lao Wang jiao xing le Xiao Zhang
old Wang call awake PRF young Zhang
'Old Wang called Young Zhang awake.' (Shi, 2002: 30 (2))

[1] The aspectual *le* in this and other examples is truly perfective and not some kind of resultative morpheme. It can be replaced with an adverbial like *meitian*, 'every day.'

i) Li ren hong le / meitian ceng sang
Li dye red PRF / every.day shirt
'Li dyed the shirt red // dyes the shirt red every day.'

Yet Mandarin also has a second resultative form, which does include structure-specific functional morphology.

(2) a. Ta shuo **de** Wang xiansheng xiao le
She say **DE** Wang Mr smile PRF
'She made Mr Wang smile by saying (something funny).'

b. Ta xue **de** yanjing dou jinshi le
He study **DE** eye even short-sighted PRF
'He got short-sighted by studying (too much).' (Shi 2002: 34 (9), (10))

Descriptively, the differences between the two types of resultatives in Chinese are i) the existence of *-de* and ii) word order. While in the morphologically simple resultative the result phrase precedes the object (1), the *de* resultative has the opposite order: the result phrase follows the object (2). Another potential difference is the position of the perfective marker – sentence finally in the *de* resultative, but between the result phrase and object in the simple resultative. However, this difference can more accurately be seen as a function of the aforementioned difference in word order since the perfective *le* follows the result phrase in both variants.

When I devised the acquisition study, the existence of this second resultative seemed unproblematic because this variant has been considered biclausal (Huang 1992; Li 1999; Shi 2002); a biclausal variant is not analogous to the English resultative, but instead analogous to some similarly biclausal English sentence that may have some resultative meaning. Such a sentence would not be considered a 'resultative' because it does not have the same syntactic complex predicate structure; nor does it adhere to the same lexical restrictions. For instance, the following English biclausal sentences would not be considered resultatives.

(3) a. Mary watered the flowers so much that they became flat.
b. Mary watered the flowers until they became flat.
c. Mary's mother praised her so much that she became unbearably proud.
d. The teacher shouted at the students until they became angry.

The important question, therefore, is whether the morphologically marked variant in Chinese is biclausal, or whether it can be considered a resultative.

In his description of Chinese resultatives, Shi writes that there is this second option which 'could be a clause, and in this case the verb must be suffixed with *de*, whose formula is V-*de* + clause' (2002: 34). When looking at the examples of *de*

resultatives given by Shi, a biclausal assumption is perhaps reasonable. In (2a) above, for instance, the result phrase is a verb *xiao* 'smile' and not an adjective, suggesting that there is a lower clause.

Similarly, Li (1999) states that the result phrase of the *de* resultative 'is part of the embedded clause in a complement position' (1999: 461). The only evidence that he gives for a biclausal analysis, however, has to do with '*ya*-insertion.' According to Li, *ya* is an interjection that cannot be inserted between a matrix verb and its complement. Since *ya* can occur after the change-of state object in (4), Li concludes that this object is not a complement, but instead 'part of an embedded clause' (1999: 459).

(4) Wo gege mafan de wo **ya** mei xinsi kan xiaoshuo
my brother bother DE me **INT** have.no mood read novel
'My brother bothered me so much that I wasn't in the mood to read a novel'
(Li 1999: 459 (25))

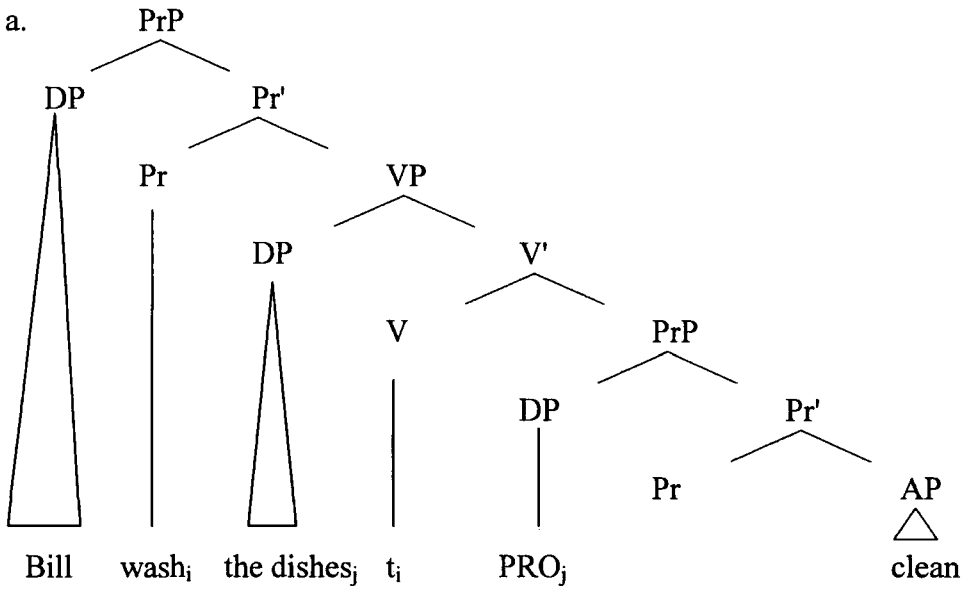
Notice, however, that this example is different from what we have been considering a resultative. In (4) there is a lower verb *mei,* 'not have' that selects an infinitival clause. Thus, an embedded clause analysis is uncontroversial.

The problem, therefore, is not sentences like that in (4) which are clearly biclausal, but instead those exemplified in (2) which appear to be monoclausal resultatives with construction-specific functional morphology. Before exploring the properties of the morphologically marked resultative in Chinese, however, I will present the structure of the morphologically simple variant, for the sake of comparison.

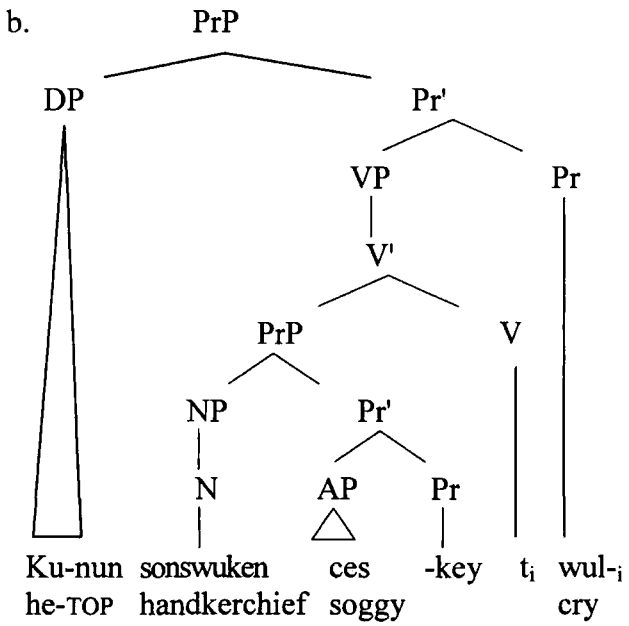
6.1.1 The structure of the morphologically simple Chinese resultative

My assumption has been that the morphologically simple resultative in Chinese has the same underlying complex predicate structure as Korean and English resultatives. For ease of exposition, the complex predicate structure posited to underlie English and Korean resultatives is given again here.

(5) a.



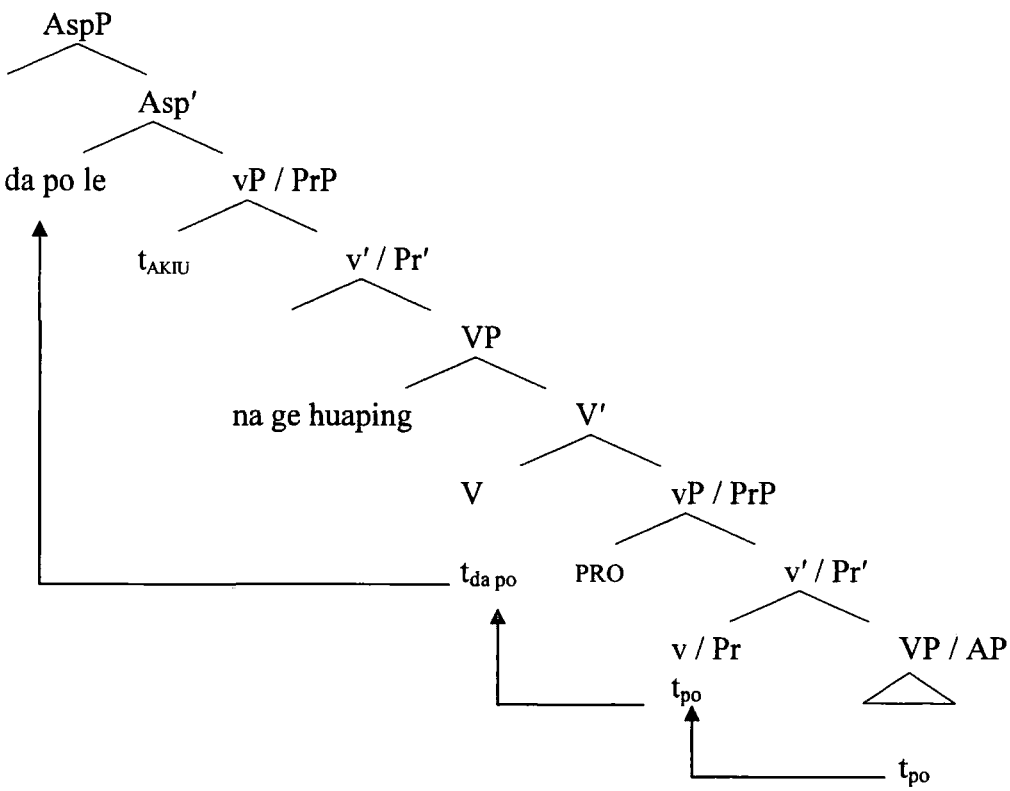
b.



The structures are the same aside from the head-initial head-final differences and the overt instantiation of the resultative morpheme in Korean but not English.

My original assumption that the morphologically simple resultative in Chinese also instantiates a complex predicate structure is supported by Zhang (2001, 2003), who argues for a structure in which VPs project little v structure, and in which heads undergo incorporation via head movement. I show Zhang's analysis in (6). Note that I have added Predicate phrase labels to Zhang's little v labels to show how this structure corresponds to the complex predicate structure that I adopted earlier in the thesis for resultatives in English and Korean.

(6) Morphologically simple resultative
Akiu da po le na ge huaping
Akiu beat broken PRF that CL vase
'Akiu beat that vase broken.'



As illustrated in (6), the result phrase, *po* 'broken,' is assumed to be base-generated as a complement of the functional verb/predicate head and raises into v/Pr, before raising further and incorporating with the main verb in V. The complex V element then raises to AspP above VP and incorporates with the perfective marker.

Notice that for Zhang, the result phrase, *po* 'broken,' is base-generated as a verb phrase. Though there is no mention of it, I assume that her reasoning is that VPs, not APs, project little v structure. With a Predicate phrase analysis, by contrast, this awkward problem is avoided since predicate structure can include adjectival predicates as naturally as verbal predicates. The advantage is that we can maintain a more crosslinguistically compatible AP analysis of the result phrase. Accordingly, the result phrase is given an AP label in the tree above.[2]

The existence of a second, morphologically marked Chinese resultative, however, complicates the issue – unless it instantiates some kind of biclausal structure

[2] Whether the result phrase is a verb phrase or an adjective is irrelevant if we accept the argument presented in Chapter 2 in which word classes have no grammatical status, but are, instead, simply convenient labels. See Chapter 2 for discussion.

and not the above complex predicate structure underlying the simple resultative. The difference is of crucial importance to the logic of my L2 acquisition study because by Full Transfer, I assume that when processing a (monoclausal) English resultative with a complex predicate, a native Chinese speaker would appeal to an analogous monoclausal resultative structure from the L1 and not some biclausal structure. If, however, the *de* resultative also instantiates a complex predicate syntactic structure analogous to the English resultative, then by L1 transfer, it may serve as an alternative possibility for processing an English resultative.

In fact, it is not the existence of a second resultative in Chinese that is the problem, it is the fact that this other form employs functional morphology: the morpheme *de*. If this second structure is a 'true' resultative, it may be considered similar to the Korean resultative. And if so, the two language groups no longer provide the meaningful contrast that was intended. Thus, we must explore the structure of this second form in more depth in order to determine whether or not it should also be analyzed as a resultative. If it is, then transfer implicating functional morphology is relevant for Chinese as well as Korean learners of English. We explore the structure of the *de* resultative in the next subsection.

6.1.2 The structure of the *de* resultative

The question is whether this *de* resultative is a resultative with structure analogous to that posited for English and Korean, or whether it is biclausal. I assume a definition of the term biclausal as a structure with two *full* clauses that each contain a verb that further projects an IP structure. In other words, I adopt a strictly structural definition of biclausal. By this definition, then, the example given by Li, shown above in (4), is indisputably biclausal. Though it may seem resultative-like because the object of the higher verb also serves functionally as the subject of the lower predicate, it is biclausal because it contains a lower verb.[3]

Some additional examples of the second morphologically marked resultative in Chinese are given in (7).

(7) a. Zhangsan ku de Lisi hen shangxin
Zhangsan cry DE Lisi very sad
'Zhangsan cried till Lisi got very sad.'(Huang 1992: 110 (5b))

[3] The absence of a lower subject suggests some kind of control structure.

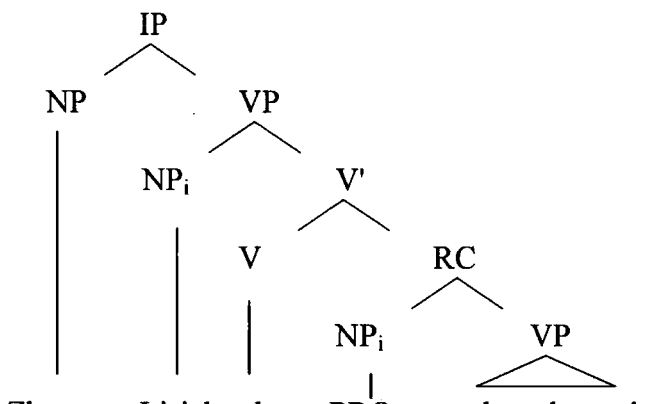
b. Zhangsan han de houlong dou ya le
Zhangasn shouted DE throat even hoarse PRF
'Zhangsan shouted until his throat even got hoarse.'(Huang 1992: 118 (32a))

c. Akiu kua de Fanjin buahaoyisi le
Akiu praised DE Fanjin embarrass PRF
'Akiu praised Fanjin so that Fanjin felt embarrassed.'
(Zhang 2001: 193 (4b))

Like the morphologically simple Chinese resultative, each of the above examples contains a subject, verb, object and result phrase – but no verb in the secondary predicate. And there is also the functional morpheme *de*.

In discussing examples like (7), Shi (2002) says that Huang (1992) argues for a biclausal analysis. Yet Huang (1992), in fact, argues for a *small clause* analysis of *de* resultatives in which the result predicate is a complement to the verb. His analysis of the *de* resultative is shown in the tree below with the small clause labeled Result Clause (RC).

(8)



'Zhangsan cried so much that Lisi got very sad.' (Huang 1992: 121 (34))

As shown in this tree, Huang posits a control structure with PRO as the subject of the small clause. PRO is coindexed with the external object of V' in Spec of VP. From this deep structure, Huang posits head movement of the verb to a higher V position because the object cannot get Case in Spec VP position. The structure that Huang adopts to accommodate this movement is a Larsonian VP-shell. In a footnote, however, Huang writes that the verb could also be seen to move into the head of a Predicate Phrase, as proposed by Bowers (1993).

Arguably, however, there are two problems with Huang's analysis. Firstly, there is the theory internal problem that is true of most small clause discussions: the

structure is given the label RC. Secondly, there is no analysis or consideration of the functional *de* morpheme. Huang (1992) merely notes, 'The morpheme *de* is a suffix (or clitic, depending on one's analysis) that developed historically from the full verb *de* meaning "obtain (the result of)"' (p. 140, fn 1).

These criticisms do not apply to the analysis by Zhang (2001, 2003). She argues that the morphologically simple resultative and the *de* resultative have parallel monoclausal structure made up of a matrix verb and a complex predicate complement. She argues that the complex predicate is a complement, in contrast with the depictive predicate, which is argued to be an adjunct. In her discussion, Zhang first notes that the result phrase in the *de* resultative distributes like a complement in Chinese – to the right of the verb (9a). Only adjuncts can occur to the left of the verb in Chinese; and as shown in (9b), a result phrase in preverbal adjunct position is impossible.

(9) a. Akiu qihuhu-de ti de men **zhi yaohuang**
Akiu angry-ADJ kick DE door **continuously shake**
'Akiu angrily kicked the door shaky.'

b. * Akiu **zhi yaohuang** de ti de men qihuhu
Akiu **continuously shake** ADJ kick DE door angry
(Zhang 2003: 171 (15))

Secondly, there can be only one result predicate in this *de* resultative (10a), in contrast with depictive phrases (10b), which can occur recursively.

(10) a. * Akiu da de Baoyu haotaodaku **shou le shang**
Akiu hit DE Baoyu cry.loudly **suffer PRF wound**

b. Akiu **huoshengsheng de xinglixingqi de** chi le na tiao yu.
Akiu **alive ADJ stinky ADJ** eat PRF that CL fish
'Akiu ate that fish alive stinky.'
(Zhang 2003: 171 (17))

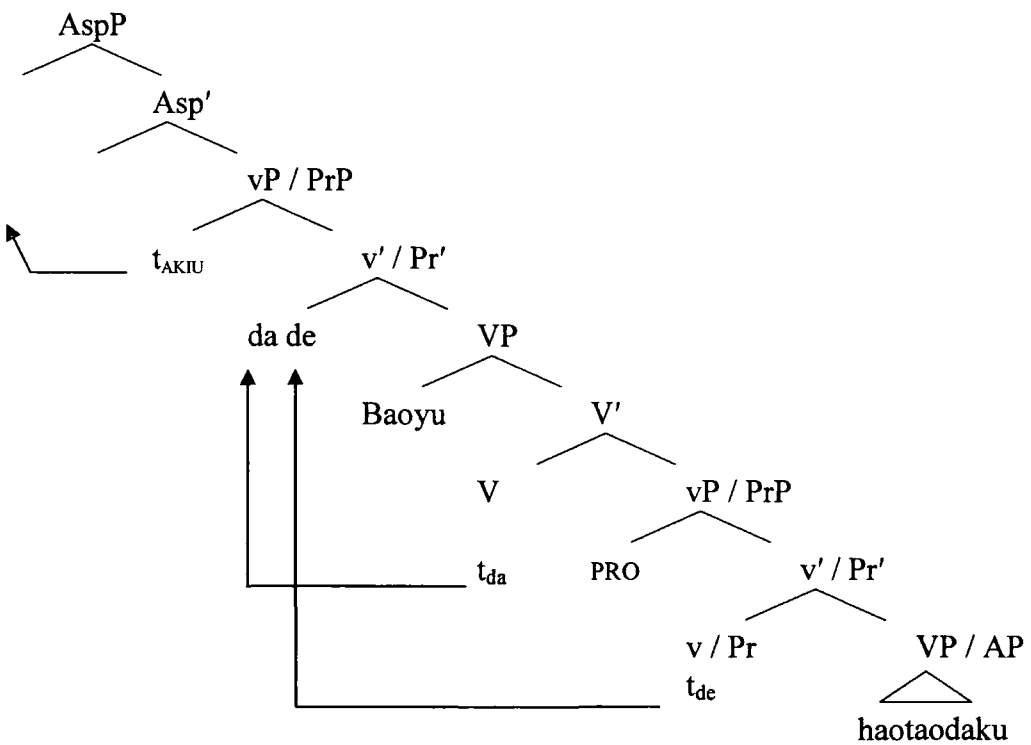
Finally, the result predicate allows extraction for topicalization, like complements are known to do (Zhang 2003: 174 (24)).

(11) **lian kuaizi** Akiu xunlian de Mali dou hui yong le
even chopstick Akiu train DE Mary also can use PRF
'Akiu trained Mary so that she was able to use even chopsticks.'

As a complement, then, Zhang (2001) argues that the result predicate in the *de* resultative is base-generated as a sister to a functional head, vP. Though the structure

is the same, there is the morphological difference. This is explained as base-generation of *de* in the lower v. The word order difference occurs because *de* in v blocks head movement, forcing the result phrase to remain in its base position. As a final step in the analysis, Zhang posits a PF rule which triggers cliticization of *de* onto the main verb. This analysis is illustrated in (12), and again I have added PrP structure where Zhang posits vP structure.

(12) Resultative with functional morpheme *de*
Akiu da de Baoyu haotaodaku.
Akiu beat DE Baoyu cry.loudly
'Akiu beat Baoyu and as a result Baoyu cried loudly.'



(Zhang 2001:216 (82))

One problem with this analysis, however, is that it is not clear why *de* would be base-generated in v/Pr. In Zhang (2001) this base-generation is implicit and discussion of *de* is limited to the question of obligatory movement to the postverbal position as a product of PF movement because *de* is clitic needing a host. In Zhang (2003), *de* is likened to *do*-support in English and is argued to occur when the result predicate cannot raise for some reason. Zhang writes: '*de*, like *do* of the *do*-support in English, is a formative not present in the Array, and is used only when head-raising is impossible . . . a typical case where head-raising is impossible is when the XP selected by v contains a degree word' (2003: 167). She illustrates this constraint on

head movement with data showing that modifiers cannot be stranded (Hoekstra 1988).

(13)a. Lao Wang pao de hen lei
Lao Wang run DE very tired
'Lao Wang ran so that he got very tired.'

b. * Lao Wang pao lei hen.

c. * Lao Wang pao hen lei. (Zhang 2003: 167 (6))

If the result phrase *lei* 'tired' raises, then the degree modifier *hen* 'very' would be stranded and so (13b) is ungrammatical.

But the interesting problem is why (13c) is ungrammatical. By Zhang's analysis, the presence of *de* in v/Pr is needed to block raising of the result phrase – but at the same time, Zhang asserts that *de* insertion occurs because the result phrase cannot raise. In short, there is circularity in the logic of this argument. As a solution, one might explore the idea that merge is more economical than movement. Accordingly, insertion of *de* would allow the string in (13a) as a viable alternative to the morphologically unmarked variant involving movement.[4]

As we have seen, by Zhang's analysis, the existence of the modifier and the word order facts in the *de* resultative are linked. Yet, whether the existence of a modifier is obligatory is unclear. Sybesma (1991) discusses *de* resultatives that do not include any modifiers in the result phrase.

(14)a. Zhangshan ku de lei le
Zhangshan cry DE tired PRF
'Zhangshan cried (himself) tired.'

b. Zhangshan ku de shoujuan shi le
Zhangshan cry DE handkerchief wet PRF
'Zhangshan cried the handkerchief wet.' (Sybesma 1991: 131 (1), (2))

He notes, however, that some native speakers find these *de* variants less natural than their morphologically simpler counterparts unless some modifier is added. The connection between degree modifiers and the *de* resultative requires more investigation.

One point which is certain is that in these resultatives, the *de* morpheme is

[4] There is another problem as well. This analysis cannot account for the aspectual *le* marker that can occur in the *de* resultative (see (7)). Even if one posits an Aspect Phrase above the lower vP/PrP, this would require movement of the result phrase to Asp – impossible on Zhang's account.

required for grammaticality. There also seems to be agreement that it is a 'dummy' element in some sense. For Zhang even though it is generated as the head of the result phrase, 'the surface position of *de* is decided at PF; it is always right-adjoined to the leftmost verbal element' (2003: 167). This view that *de* insertion is some kind of PF phenomenon accords with that of Sybesma, who, when writing about *de* says '[T]here is a position which (for whatever reason) must eventually get a phonological matrix' (1991: 132). Sybesma views *de* insertion as an alternative to movement in Chinese resultative formation and the result phrase occurs in an Extent Phrase which is a sister of the verb and serves to delimit a matrix clause.

In sum, though some details of the analysis remain to be worked out, there does appear to be a second monoclausal resultative in Chinese with a functional element that can be analyzed as the head of a functional projection in the predicate. Thus, it appears as though both resultative variants in Chinese can be analyzed as instantiating the same underlying complex predicate structure. The difference occurs in derivation: the morphologically simple resultative involves movement of the result phrase, while the morphologically complex resultative includes the insertion of the functional *de* morpheme. In short, there are two resultative patterns in Chinese: one contains a structure-specific functional morpheme, like Korean, and the other, like English, does not.

Interestingly, however, the two resultatives do not appear to be freely interchangeable. Huang notes that while 'many' of the morphologically marked complex predicates are possible in the more simple counterpart, others are not (1992: 124). The resultatives in (15) and (16) are possible in either of the two forms.

(15) a. Morphologically simple resultative:
Akiu ti po le qiuxie
Akiu kick broken PRF sneakers
'Akiu kicked so much that the sneakers were broken.'

b. *de* resultative:
Akiu ti de qiuxie dou po le
Akiu kick DE sneaker even broken PRF
'Akiu kicked so much that even the sneakers were broken.'
(Zhang 2001:194 (12))

(16) a. Morphologically simple resultative:
Akiu ku shi le shoujuan
Akiu cry wet PRF handkerchief
'Akiu cried and as a result the handkerchief was wet.'
(Zhang 2001:193 (3c))

b. *de* resultative:
Akiu ku de shoujuan ye shi le
Akiu cry DE handkerchief also wet PRF
'Akiu cried and as a result the handkerchief was wet.'
(Zhang 2001:193 (4c))

By contrast, when Huang notes that some morphologically simple resultatives cannot occur in the morphologically marked form, he gives the following examples (1992: 127 (49) – (52)).[5]

(17) a. Morphologically simple resultative:
ta chi bao fan le
he eat full rice PRF
'He ate rice and got full.'

b. *de* resultative:
* ta chi de fan hen bao
he eat DE rice very full

(18) a. Morphologically simple resultative:
ta he zui jui le
he drink drunk wine PRF
'He drank wine and got drunk.'

b. *de* resultative:
* ta he de jiu zui xunxun-de
he drink DE wine very drunk

Notice, however, that even though the (a) examples cannot be expressed in the *de* resultative form (b) these are all examples of *subject* resultatives, viz., the result phrase modifies the subject, not the object.

To investigate whether the two forms are interchangeable, I consulted native

[5] According to Sybesma (1991), when there are two forms of the same resultative, they 'do not differ substantially in meaning' (1991: 138). According to my informants, however, while the two variants usually give rise to the same interpretation, they do not always do so. While in (ia) the shirt became red as a consequence of dying, in (ib), the shirt became red, but not necessarily because of dying (though it *could* be a result of the dying).

i) a. Li ren hong le ceng sang
Li dye red PRF shirt
'Li dyed the shirt red.'

b. Li ren de ceng sang hong le
Li dye DE shirt red PRF
'The shirt that Li dyed became red.'

speakers of Mandarin Chinese. Discussions with my informants suggest that there are object resultatives that are restricted to one form or the other. In the next section I will explore this further by focusing on the Chinese analogues of the English sentences that I tested in terms of their ability to occur in each of the two resultative forms. I conclude this subsection with the following observation: the fact that the two resultatives are not freely interchangeable supports the claim that the *de* form is a true resultative and not some biclausal structure since the latter would not be subject to any restrictions beyond the usual discourse constraints on language.

6.1.3 Chinese analogues of the English resultatives tested

Because there are two forms in Chinese, I needed to know if the resultatives that I tested have analogues that can be expressed in both forms in Chinese. Thus, I asked native Mandarin speakers to give judgments on translations of the sentences in each of the two forms.[6] The ten native Mandarin informants were all postgraduate students studying Linguistics or Applied Linguistics at the University of Durham. I gave them the sentences as minimal pairs, and asked them not to compare them, but to judge them in isolation. Additionally, I emphasized that the sentences were meant to give rise to a *resultative* interpretation and encouraged them to devise contexts where a resultative would be natural. Though I asked them to indicate whether each sentence was acceptable or not, I also allowed them to use a question mark if they felt the sentence was odd, but not ungrammatical. The judgments of each of the native subjects can be found in Appendix F.

Not all of the subjects agreed all of the time on the judgments. Therefore, I used a criterion of 66% acceptance, like in the results of the L2 study. Additionally, I excluded the question mark responses given by individual native speakers when they were unsure. So the total number of judgments is less than ten for some of the sentences. The Chinese native speakers' acceptance rates, corresponding to the English translation, can be found in Table 1. The table lists the test sentences in the order of the original judgments that I assumed for English and Chinese when constructing the experiment. For each type of resultative, I have indicated the number of Chinese native speakers who accepted a particular sentence (column headed by √), the total number of judgments for each sentence after subtracting the question mark

[6] The target sentences were translated by a native speaker into Mandarin using Chinese script.

responses (N), and the percentage.

Original assumption		Test Sentence	Morphologically simple resultatives			*de* resultatives		
E	C		√	N	%	√	N	%
√	√	Mary washed the dishes clean.	7	8	87.5	1	6	16.7
√	√	Mary cut Sarah's hair short.	9	9	100	0	7	0
√	√	Mary smashed the black pepper fine.	9	9	100	0	9	0
√	√	Mary ran her feet sore.	5	7	71.4	10	10	100
√	√	Mary danced her shoes worn.	7	8	87.5	9	10	90
√	√	The rooster crowed Mary awake.	9	9	100	3	8	37.5
*	*	Mary dragged the log smooth.	5	9	55.6	1	9	11.1
*	*	**Mary dropped the glass broken.**	**10**	**10**	**100**	2	9	22.2
*	*	Mary's mother praised her proud.	0	9	0	6	9	66.7
*	*	Mary snored Sarah awake.	0	9	0	0	10	0
*	*	Mary waited her mother impatient.	0	9	0	7	9	77.8
*	*	The principal shouted Mr. Jones angry.	0	9	0	10	10	100
√	*	Mary watered the flowers flat.	0	8	0	0	10	0
√	*	**The dryer spun her jacket dry.**	**8**	**9**	**88.9**	5	7	71.4
√	*	The hot coals burned Carl's feet blistered.	0	10	0	10	10	100
√	*	Sarah laughed herself sick.	1	8	12.5	3	9	33.3
√	*	Mary worried her mother sick.	0	9	0	1	9	11.1
√	*	Carl drank himself stupid.	0	10	0	7	7	100
*	√	Carl banged the metal plate dented.	8	8	100	8	8	100
*	√	**Mary boiled the soup salty.**	**3**	**6**	**50**	7	8	87.5
*	√	Sarah cut the painting destroyed.	9	9	100	4	8	50
*	√	Mary ate her stomach sick.	9	9	100	7	10	70
*	√	**Mary shouted herself fainted.**	**0**	**7**	**0**	7	8	87.5
*	√	Mary cried the handkerchief soggy	7	10	70	8	8	100

Table 1 Native speaker acceptance of both types of resultatives in Mandarin Chinese

As shown by the four bolded sentences in the table, this pool of native speakers disagreed to some extent with my original assumptions regarding grammaticality with the morphologically unmarked resultatives. Two of the sentences that were deemed ungrammatical in Chinese by my original informants when I designed the experiment were accepted by these native speakers, while two others were rejected by this group, contra my original understanding.

The table also shows that some of the test sentences can occur as morphologically marked resultatives only, some in the simple form, some as both and some as neither. In order to address the question of transfer of morphology, we need to consider the sentences that can occur in the *de* form in particular. To facilitate

reanalysis, I have reordered the sentences based on the grammaticality of the *de* resultative in Chinese, as determined by these native speakers.

		***de* resultatives**		
E	**Test Sentence**	**√**	**N**	**%**
√	Mary ran her feet sore.	10	10	100
√	Mary danced her shoes worn.	9	10	90
√	The hot coals burned Carl's feet blistered.	10	10	100
√	Carl drank himself stupid.	7	7	100
√	The dryer spun her jacket dry.	5	7	71.4
*	Mary waited her mother impatient.	7	9	77.8
*	The principal shouted Mr. Jones angry.	10	10	100
*	Mary's mother praised her proud.	6	9	66.7
*	Carl banged the metal plate dented.	8	8	100
*	Mary ate her stomach sick.	7	10	70
*	Mary shouted herself fainted.	7	8	87.5
*	Mary cried the handkerchief soggy	8	8	100
*	Mary boiled the soup salty.	7	8	87.5
√	Mary washed the dishes clean.	1	6	16.7
√	Mary cut Sarah's hair short.	0	7	0
√	Mary smashed the black pepper fine.	0	9	0
√	The rooster crowed Mary awake.	3	8	37.5
√	Mary watered the flowers flat.	0	10	0
√	Sarah laughed herself sick.	3	9	33.3
√	Mary worried her mother sick.	1	9	11.1
*	Mary dragged the log smooth.	1	9	11.1
*	Mary dropped the glass broken.	2	9	22.2
*	Mary snored Sarah awake.	0	10	0
*	Sarah cut the painting destroyed.	4	8	50

Table 2 Native speaker acceptance of *de* resultative analogues of test sentences

As can be seen in this table, the morphologically marked analogues of 13 of the test sentences were considered grammatical in Chinese while the other 11 were not. The fact that some of the resultatives that I tested can occur in a morphologically marked form in Chinese means that we must reconsider the results of the Chinese learners of English.

6.2 Reanalysis of Data

The original research question driving this study was whether the presence of functional resultative morphology in the native language would transfer such that Korean speakers would initially be restrictive in their acceptance of resultatives in English. And from this starting point, I also asked if there would be developmental

differences that stem from this L1-based initial state. As discussed in the last section, however, there are two problems that have implications for the interpretation of results.

Firstly, there is some disagreement about the grammaticality of particular analogues: not all of the native speaker informants agreed with my original assumptions about the grammaticality of morphologically simple Chinese resultatives. Two sentences that I assumed to be grammatical in Chinese were deemed ungrammatical, and two that were considered ungrammatical originally, were judged to be grammatical by these native speakers. The discrepancy with these four sentences alone may call into question the interpretation of results put forward in Chapter 5. Specifically, it could mitigate against the claims I made regarding L1 transfer since grammatical resultatives are assumed to transfer, resulting in acceptance of analogues resultatives in English, while ungrammatical resultatives in Chinese are expected to cause rejection. Arguably, however, reanalysis taking these four sentences into account alone is insufficient given the larger, second problem that some of the test sentences can be expressed in a second, morphologically marked resultative form in Chinese. Thus, I will reanalyze the results in light of both of these concerns combined.

Before we reanalyze the results, however, note that the *overall* acceptance rates are not affected by any reconsideration of the data; and recall that only one of the thirty-two (3.1%) Chinese subjects exhibited an overall tendency to reject English resultatives – in comparison with four of the fourteen Korean subjects (28.6%). With our new understanding that there is a morphologically marked resultative in Chinese, this result may now seem curious – why is it that there aren't *more* subjects who are restrictive in their acceptance of English resultatives if Chinese is, in fact, similar to Korean in this respect?

One reasonable explanation is that despite the similarity between Korean and Chinese, there is still the difference that the Chinese has a second resultative variant that is morphologically simple, like in English. Thus, despite the transfer of the grammar underlying a morphologically marked form to the Interlanguage of the Chinese learners of English, the concurrent existence of a second form that is analogous to the morphologically unmarked form in English may lead to a higher *overall* acceptance rate among these learners.

Beyond this generalization, however, we must explore the implications of the second resultative pattern which includes the overt resultative *de* morpheme. Our

contention all along has been that there is transfer of morphology. Yet potentially, there is an alternative way to view this second resultative form in Chinese. The *de* resultative may be considered more similar to English, at least superficially; both share the same verb, object, result phrase linear order – unlike the morphologically simple resultative in Chinese, and unlike the Korean resultative. Thus, one possibility is that this similarity will cause higher rates of acceptance among the Chinese learners of English resultatives whose analogues are grammatical in the *de* resultative form.

This would directly counter our primary hypothesis that transfer of morphology leads to rejection of analogous resultatives. And if our hypothesis is correct, we would instead expect that the Chinese learners will respond more like the Koreans. Note, however, that even though Chinese does not provide the contrast we were originally assuming, Chinese learners of English are not expected to pattern exactly like the Koreans because there are *two* possible analogues in Chinese. To consider the implications of this, let us rethink the expectations, drawing on our underlying theoretical assumptions. We have already argued that L1 transfer implicates the whole of the derivation and not just the properties of particular lexical items. Thus, in addition to whether a specific lexical combination is possible in a particular resultative, if there is also a morphological requirement, this will transfer as well.

The question, then, is what transfers given that there are two possibilities for resultative formation in Chinese. According to the analyses we have adopted above, both instantiate the same syntactic complex predicate structure; so we can assume that the basic syntax underlying the two resultative forms is the same. The difference is in the derivation: one variant involves movement of the result phrase while the other includes insertion of a functional morpheme. So, when faced with a resultative in English, do Chinese learners (initially) appeal to the grammar of the analogues of that particular sentence? And if so, will there be a difference between those resultatives that involve functional morphology in the L1 and those that don't?

To explore these questions, I have reanalyzed the data. Firstly, I have separated the responses to those sentences that are grammatical in Chinese (in one or both forms) from those that are not possible in any resultative form in Chinese. This will allow us to look for evidence of Full Transfer generally, as learners might be expected to more readily accept resultatives that have licit analogues in the L1. These results will be presented in the next subsection. Secondly, I have analyzed the results

in terms of those sentences whose Chinese analogues contain the functional morpheme *de*. By looking at those sentences we can look for effects of transfer of morphology in the results of the L1 Chinese learners of English. Before investigating these questions of transfer, however, we need to clarify which test sentences have grammatical resultative forms if we take into account the second, morphologically marked resultative in Chinese.

6.2.1 Reconsideration of the test sentences

Because there are two resultative forms in Mandarin Chinese, we might expect that the number of test sentences that have licit analogues in Chinese is higher than we originally thought. As shown in Table 3, there are, in fact, 19 test sentences that have a counterpart that is grammatical in one or both of the Chinese resultative forms,

	Test Sentence (Grammaticality in English)	**Grammatical as Morphologically simple resultative**	**Grammatical as *de* resultative**
√	Mary washed the dishes clean.	√	*
√	Mary cut Sarah's hair short.	√	*
√	Carl drank himself stupid.	*	√
√	The dryer spun her jacket dry.	√	√
?	*Mary smashed the black pepper fine.*	√	*
?	*Mary danced her shoes worn.*	√	√
?	*The rooster crowed Mary awake.*	√	*
?	*The hot coals burned Carl's feet blistered.*	*	√
?	*Mary ran her feet sore.*	√	√
*	Mary dropped the glass broken.	√	*
*	Mary's mother praised her proud.	*	√
*	Mary waited her mother impatient.	*	√
*	The principal shouted Mr. Jones angry.	*	√
*	Mary boiled the soup salty.	*	√
*	Sarah cut the painting destroyed.	√	*
*	Mary ate her stomach sick.	√	√
*	Mary shouted herself fainted.	*	√
*	Mary cried the handkerchief soggy	*	√
*	Carl banged the metal plate dented.	√	√
√	Sarah laughed herself sick.	*	*
√	Mary worried her mother sick.	*	*
?	*Mary watered the flowers flat.*	*	*
*	Mary snored Sarah awake.	*	*
*	Mary dragged the log smooth.	*	*

Table 3 The grammaticality of analogues of test sentences in Mandarin Chinese

leaving only 5 that have no licit analogues.

Whether a test sentence is possible in the native language is relevant for questions of L1 transfer. But beyond transfer, we must take IL development into account. Thus, we must also consider the results in terms of whether they are grammatical in English. Recall, however, that the native speakers of English could not agree on six of the original test sentences. Because we are interested in the effect of target language input in the development of nonnative speakers, we can only consider those sentences that we can assume exist in the target language input with a degree of confidence. The sentences that must be discounted because of their indeterminancy in English are italicized in Table 3. This leaves 18 total sentences. In Table 4, these are divided into the four possibilities in terms of grammaticality in English and Chinese.

	Grammatical in Chinese	Ungrammatical in Chinese
Grammatical in English	4	2
Ungrammatical in English	10	2

Table 4 Test sentences in terms of grammaticality, without problematic sentences

When divided along the lines of grammaticality in the L1 and target language, three of the four categories contain an unfortunately small number of tokens. For this reason, in this section we will consider the results in two basic ways. To look for evidence of transfer, we will look at the responses to all the test sentences, whether they are problematic in English or not. We will then remove the problematic six sentences in order to discuss questions of IL development.

6.2.2 Results: Full Transfer

Beginning, therefore, with the issue of Full Transfer, consider Table 5, which shows the acceptance rates of the L1 Chinese subjects to the 19 English resultatives that have licit analogues in the L1, and the 5 that do not.

Eight of the Chinese subjects (in bold in the table) accept English test sentences that have analogues that are grammatical in Chinese at rates of 66% or higher. None of the subjects reject these sentences (by our criterion of 33%). This means that the majority of the subjects have variable judgements.

	Chinese analogues are grammatical		Chinese analogues are ungrammatical	
	Tokens	%	Tokens	%
Subject 19	10 of 18	55.6	2 of 5	40
Subject 6	8 of 18	44.4	1 of 5	20
Subject 11	8 of 15	53.3	0 of 3	0
Subject 15	**15 of 17**	**88.2**	**4 of 5**	**80**
Subject 5	10 of 17	58.8	**3 of 4**	**75**
Subject 8	9 of 14	64.3	1 of 4	25
Subject 12	6 of 12	50	3 of 5	60
Subject 14	7 of 19	36.8	2 of 5	40
Subject 17	6 of 13	46.2	1 of 5	20
Subject 1	**12 of 18**	**66.7**	2 of 5	40
Subject 7	**13 of 18**	**72.2**	**3 of 4**	**75**
Subject 10	8 of 13	61.5	3 of 5	60
Subject 13	9 of 18	50	1 of 4	25
Subject 18	**12 of 18**	**66.7**	0 of 4	0
Subject 4	8 of 16	50	1 of 4	25
Subject 3	11 of 19	57.9	2 of 5	40
Subject 16	10 of 18	55.6	1 of 5	20
Subject 2	11 of 17	64.7	2 of 5	40
Subject 9	**13 of 18**	**72.2**	**4 of 5**	**80**
Subject 28	9 of 18	50	2 of 5	40
Subject 27	**15 of 16**	**93.8**	**4 of 4**	**100**
Subject 20	**11 of 16**	**68.8**	1 of 5	20
Subject 30	**10 of 15**	**66.7**	2 of 5	40
Subject 26	11 of 19	57.9	2 of 5	40
Subject 25	12of 19	63.2	1 of 3	33.3
Subject 31	8 of 17	47.1	2 of 5	40
Subject 29	6 of 17	35.3	0 of 5	0
Subject 24	10 of 19	52.6	0 of 5	0
Subject 21	9 of 19	47.4	2 of 5	40
Subject 22	11 of 17	64.7	2 of 4	50
Subject 23	11 of 17	64.7	3 of 5	60
Subject 32	10 of 19	52.6	2 of 5	40

Table 5 Acceptance of English resultatives by L1 Chinese Subjects

By reporting the results this way, however, we cannot know if this variability can be attributed to some kind of interfering role if for some of these resultatives there is transfer of the morphological requirement. Another possibility is that target language input has caused these learners to begin to override their L1-based Interlanguage grammar; but again, when reported together, it is not possible to see any such developmental effect.

As would be expected by Full Transfer, more than a third of the subjects (12 of 32) rule out English resultatives whose analogues are not possible in Chinese in either of the resultative forms, with overall acceptance rates lower than 33% (shaded

in the table). Also noteworthy, five subjects (in bold in the table) do the opposite – accepting the English resultatives with no Chinese analogues at rates of 66% or higher. While this result points to overgeneralization in IL development, it must be viewed with caution since, as mentioned above, the results do not take into account whether or not these resultatives are grammatical in English. In other words, the results in Table 5 do not reflect the fact that some of these resultatives occur in the target language input while others do not.

Thus, in order to address the question of development, we must also consider the results in terms of whether they are possible in English, and therefore expected to form part of the target language input. Table 6 shows the results of the 14 unproblematic test sentences that have grammatical analogues in Chinese (i.e. the six sentences which proved problematic for native speakers of English have been excluded). The first column gives the total number of these test sentences that were accepted. This leaves a total of 14 sentences that are grammatical in Chinese, four of which are (uncontroversially) grammatical in English and ten that are ungrammatical in English.

The table shows that only 6 Chinese subjects have overall acceptance rates about 66% (in bold in the table) and 2 fall below the criterion for restrictive responses (shaded in the table). When considering only those sentences that are grammatical in English, more than half of the subjects (18 of 32, 56%) accept these forms. What is surprising is that 9 of the subjects (28%) accept resultatives that they would not have heard in the input because they are ungrammatical in English. A reasonable explanation for this would be to say that some subjects are overgeneralizing accepting *all* English resultatives. But only 5 of the subjects who accept ungrammatical English resultatives also accept grammatical ones.

	Total acceptance of Resultatives		Acceptance of Resultatives Grammatical in English		Acceptance of Resultatives Ungrammatical in English	
	Tokens	%	Tokens	%	Tokens	%
Subject 19	7 of 13	53.8	**3 of 4**	**75**	4 of 9	44.4
Subject 6	6 of 13	46.2	**2 of 3**	**66.7**	4 of 10	40
Subject 11	6 of 11	54.5	1 of 3	33.3	5 of 8	62.5
Subject 15	**11 of 13**	**84.6**	**4 of 4**	**100**	**7 of 9**	**77.8**
Subject 5	9 of 14	64.3	2 of 4	50	**7 of 10**	**70**
Subject 8	6 of 10	60	1 of 2	50	5 of 9	55.6
Subject 12	5 of 11	45.5	2 of 4	50	3 of 6	50
Subject 14	5 of 14	35.7	2 of 4	50	3 of 10	30
Subject 17	4 of 9	11.1	2 of 4	52	2 of 5	40
Subject 1	8 of 13	61.5	**3 of 4**	**75**	5 of 9	55.6
Subject 7	**10 of 13**	**76.9**	**3 of 4**	**75**	**7 of 9**	**77.8**
Subject 10	6 of 11	54.5	1 of 4	24	**5 of 7**	**71.4**
Subject 13	6 of 13	46.2	**3 of 4**	**75**	3 of 9	33.3
Subject 18	7 of 13	53.8	2 of 4	50	5 of 9	55.6
Subject 4	7 of 13	53.8	1 of 4	25	**6 of 9**	**66.7**
Subject 3	8 of 14	57.1	**3 of 4**	**75**	5 of 9	55.6
Subject 16	7 of 13	53.8	**3 of 4**	**75**	4 of 9	44.4
Subject 2	7 of 13	53.8	2 of 4	50	5 of 9	55.6
Subject 9	**10 of 13**	**76.9**	**4 of 4**	**100**	**6 of 9**	**66.7**
Subject 28	6 of 13	46.2	2 of 4	50	4 of 9	44.4
Subject 27	**12 of 13**	**92.3**	**4 of 4**	**100**	**8 of 9**	**88.9**
Subject 20	**9 of 13**	**69.2**	**4 of 4**	**100**	5 of 9	55.6
Subject 30	**8 of 11**	**72.7**	**2 of 3**	**66.7**	**6 of 8**	**75**
Subject 26	7 of 14	50	**3 of 4**	**75**	4 of 10	40
Subject 25	8 of 14	57.1	2 of 4	50	**6 of 9**	**66.7**
Subject 31	5 of 13	38.5	2 of 4	50	3 of 9	33.3
Subject 24	7 of 14	50	**3 of 4**	**75**	4 of 10	40
Subject 29	3 of 13	23.1	1 of 4	25	2 of 9	22.3
Subject 21	5 of 14	35.7	**3 of 4**	**75**	2 of 10	20
Subject 22	7 of 13	53.8	**3 of 3**	**100**	4 of 10	40
Subject 23	7 of 14	50	**3 of 4**	**75**	4 of 9	44.4
Subject 32	6 of 14	42.9	**3 of 4**	**75**	3 of 10	33.3

Table 6 Acceptance of resultatives with grammatical analogues in Chinese

When looking for evidence of Full Transfer, we must also consider those sentences that are ungrammatical (in either of the resultative forms) in Chinese. After removing the problematic English sentence, there are only 4 such sentences, 2 of which are grammatical in English and 2 which are not. These results are given in Table 7.

	Total Acceptance of Resultatives		Acceptance of Resultatives Grammatical in English		Acceptance of Resultatives Ungrammatical in English	
	Tokens	%	Tokens	%	Tokens	%
Subject 19	2 of 4	50	1 of 2	50	1 of 2	50
Subject 6	1 of 4	25	0 of 2	0	1 of 2	50
Subject 11	0 of 3	0	0 of 1	0	0 of 2	0
Subject 15	**3 of 4**	**75**	1 of 2	50	2 of 2	100
Subject 5	**3 of 3**	**100**	2 of 2	100	1 of 1	100
Subject 8	1 of 3	33.3	0 of 1	0	1 of 2	50
Subject 12	2 of 4	50	2 of 2	100	0 of 2	0
Subject 14	1 of 4	25	0 of 2	0	1 of 2	50
Subject 17	1 of 4	25	1 of 2	50	0 of 2	0
Subject 1	1 of 4	25	0 of 2	0	1 of 2	50
Subject 7	**2 of 3**	**66.7**	2 of 2	100	0 of 1	0
Subject 10	2 of 4	50	1 of 2	50	1 of 2	50
Subject 13	1 of 3	33.3	0 of 2	0	0 of 1	0
Subject 18	0 of 3	0	0 of 2	0	0 of 1	0
Subject 4	0 of 3	0	0 of 2	0	0 of 1	0
Subject 3	2 of 4	25	0 of 2	0	2 of 2	100
Subject 16	1 of 4	25	0 of 2	0	1 of 2	50
Subject 2	1 of 4	25	0 of 2	0	1 of 2	50
Subject 9	**4 of 4**	**100**	1 of 2	50	2 of 2	100
Subject 28	2 of 4	50	0 of 2	0	2 of 2	100
Subject 27	**3 of 3**	**100**	2 of 2	100	1 of 1	100
Subject 20	1 of 4	25	0 of 2	0	1 of 2	50
Subject 30	1 of 4	25	0 of 2	0	1 of 2	50
Subject 26	1 of 4	25	0 of 2	0	1 of 2	50
Subject 25	1 of 3	33.3	1 of 2	50	0 of 1	0
Subject 31	1 of 4	25	0 of 2	0	1 of 2	50
Subject 24	0 of 4	0	0 of 2	0	0 of 2	0
Subject 29	0 of 4	0	0 of 2	0	0 of 2	0
Subject 21	2 of 4	50	1 of 2	50	1 of 2	50
Subject 22	1 of 3	33.3	0 of 2	0	1 of 1	100
Subject 23	2 of 4	50	1 of 2	50	1 of 2	50
Subject 32	2 of 4	50	1 of 2	50	1 of 2	50

Table 7 Acceptance of resultatives without grammatical analogues in Chinese

The 5 subjects who accept these sentences (in bold in the table) could constitute evidence against Full Transfer because there is no form in the native language that could allow these sentences to be accepted. Yet it is not inconsistent with Full Transfer/Full Access to claim that these subjects are exhibiting a developmental a stage of overgeneralization. Stronger support for Full Transfer comes from the 20 learners (62.5%) who reject these forms (shaded in the table), whether they form part of the target language input or not.

In sum, there are a number of subjects who accept resultatives with grammatical Chinese analogues and reject those that without. Yet these results are not robust; stronger support for Full Transfer would be results in which the same subjects

only accept those resultatives with grammatical analogues in Chinese, regardless of their status in English. Only two subjects (Subjects 20 and 30) exhibit this pattern: Table 6 shows overall acceptance rates for these resultatives with Chinese counterparts and Table 7 shows rejection of those without grammatical analogues. This lack of robust support for Full Transfer is not too surprising, however, as these subjects are not at the initial state. Moreover, the data so far has not accounted for the fact that for some of these resultatives, the analogue in Chinese implicates functional morphology. We now turn, therefore, to the issue of transfer of morphology.

6.2.3 Results: Transfer of Morphology

In the above subsection we were looking for support for Full Transfer in general. To address the more specific transfer of morphology question, we need to account for the *de* resultative. For this reason I have divided the results into i) those test sentences whose analogues are grammatical only in the *de* variant of the resultative and compared them with those grammatical only in the morphologically simple form, and ii) those that are grammatical in both variants as compared to those that are not grammatical in any form in Chinese. These results are given in the next two subsections, respectively.

6.2.3.1 Results: Transfer of morphologically simple resultative vs *de* resultative

In total, there are 7 test sentences whose analogues are grammatical only in the *de* resultative in Chinese, and 6 that occur only in the morphologically simple form. The acceptance rates are given in raw numbers and percentages for these 13 sentences, and for each Chinese subject in Table 8 (overleaf). (Note that the raw number of tokens differs by individual, because I excluded 'don't know' responses.)

If we maintain our 66% criterion for acceptance and 33% criterion for rejection, we can see that there are four subjects who reject the analogues of the *de* resultative, but accept the simple resultative analogues. The results of these four subjects (31, 29, 21 and 22), shaded in the table, support the claim that the lack of analogues resultative morphology in the input causes these learners to reject these forms. This result is especially striking when juxtaposed against the general lack of restrictive responses in the overall results of the learners. As discussed above, only one Chinese subject is restrictive when considering the responses to all the test sentences combined.

	Acceptance of analogues of *de* resultatives		Acceptance of analogues of morphologically simple resultatives	
Subject 19	4 of 7	57.1%	5 of 6	83.3%
Subject 6	3 of 7	42.9%	4 of 6	66.7%
Subject 11	4 of 6	66.7%	2 of 5	40%
Subject 15	**6 of 7**	**85.7%**	**6** of 6	**100%**
Subject 5	4 of 6	66.7%	3 of 5	60%
Subject 8	2 of 3	66.7%	2 of 6	33.3%
Subject 12	2 of 4	50%	3 of 4	75%
Subject 14	3 of 7	42.9%	4 of 6	66.7%
Subject 17	2 of 5	40%	3 of 4	75%
Subject 1	4 of 7	57.1%	6 of 6	100%
Subject 7	**6 of 6**	**100%**	**4** of 6	**66.7%**
Subject 10	2 of 5	40%	2 of 4	50%
Subject 13	4 of 7	57.1%	4 of 6	66.7%
Subject 18	4 of 7	57.1%	4 of 6	66.7%
Subject 4	3 of 5	60%	3 of 5	60%
Subject 3	3 of 7	42.9%	4 of 6	66.7%
Subject 16	4 of 7	57.1%	3 of 6	50%
Subject 2	**5 of 6**	**83.3%**	**4** of 6	**66.7%**
Subject 9	**4 of 6**	**66.67%**	**5** of 6	**83.3%**
Subject 28	3 of 7	42.9%	5 of 6	83.3%
Subject 27	**6 of 7**	**85.7%**	**5 of 5**	**100%**
Subject 20	**4 of 6**	**66.7%**	**5 of 5**	**100%**
Subject 30	**5 of 6**	**83.3%**	**4** of 6	**66.7%**
Subject 26	3 of 7	42.9%	4 of 6	66.7%
Subject 25	**5 of 7**	**71.4%**	**4** of 6	**66.7%**
Subject 31	2 of 7	28.6%	3 of 5	60%
Subject 29	0 of 6	0%	5 of 6	83.3%
Subject 24	3 of 7	42.9%	4 of 6	66.7%
Subject 21	0 of 7	0%	4 of 6	66.7%
Subject 22	2 of 7	28.6%	4 of 5	80%
Subject 23	3 of 6	50%	4 of 6	66.7%
Subject 32	3 of 7	42.9%	5 of 6	83.3%

Table 8 Acceptance of English resultatives whose analogues are grammatical in one form only (*de* resultative or morphologically simple)

The opposite tendency also obtains, however. This tendency to accept the English resultatives whose analogues are grammatical in the *de* form in Chinese is especially notable among eight subjects who accept analogues of both of these forms. These subjects, who arguably show a degree of overgeneralization, are shown in bold in the table (Subjects 15, 7, 2, 9, 27, 20, 30 and 25). There are no subjects who reject both of these categories of sentences and only one, Subject 8, who accepts analogues of *de* resultatives, but rejects the other form.

Earlier in this chapter we asked whether subjects might readily accept English resultatives whose analogues occur in the second, morphologically marked resultative form in Chinese because this form is the only one in which the linear order of the constituents is the same as in English. Yet this is not a trend among the native

Chinese speakers. In fact, only one subject exhibits this tendency. And even though Subject 8 contradicts our expectation that transfer of morphology will lead to rejection of target language resultatives, notice that the 66.7% acceptance rate of this subject is based only on three tokens because 4 of these 7 sentences (57%) were marked 'don't know'. Arguably, therefore, this result can be discounted. It is also interesting, however, that of the other 17 target sentences, Subject 8 only chose the 'don't know' option two other times (11.8%). Thus it seems that it is particularly difficult for this subject to judge resultatives whose analogues require functional morphology in the L1, again supporting the claim that there's something different about transfer of morphology.

The remaining subjects do not accept these sets of sentences at rates below 33% or above 66%. Note, however, that the results in Table 8 do not take into account whether the resultatives are grammatical in English, so the discussion so far fails to accommodate the effect of input. Since target language input is expected to cause change in the interlanguage grammar, the question is whether there might be a difference in the results of resultatives that involve transfer of morphology in terms of development. To be more precise, where there is transfer of morphology, we originally asked whether learners would move from an initial stage of restrictiveness into a stage of conservative input-matching or whether there might be overgeneration.

But there is a problem. Because we now have two types of Chinese resultatives to take into account, the number of tokens for each of the types is quite small. Additionally, recall that in the original analysis of results in Chapter 5, we excluded the responses to six sentences because the English native speaker controls did not agree on the judgments. If we want to see the effects of input on the grammar of the learners, we must also exclude these sentences here because of their indeterminant status in English. After all, if native speakers judged a particular resultative as ungrammatical, we cannot claim with confidence that it served as target language input.

Because of these complications, the number of tokens for each sentence type is very small. Specifically, if we exclude the problematic resultatives and divide the remaining analogues of morphologically simple resultatives into those that are grammatical in English and those that are ungrammatical, there are only two tokens of each. Similarly, there are only two tokens of analogues of the *de* resultatives that are ungrammatical in English, though there are four tokens of analogues of the *de*

resultatives that are grammatical in English.[7] These results will not be considered here, but have been included in Appendix G.

In sum, by reanalyzing the data based on the existence of two resultative forms in Chinese, we find that eight of the subjects overgeneralize, accepting English resultatives which occur in both analogues, and four who systematically reject those resultatives whose analogues require morphology in the native language. Based on these results, we can claim support for transfer of morphology as we originally hypothesized, but we do not see evidence for a conservative input-matching developmental pattern.

Oddly, however, the four are subjects who are restrictive scored in the highest range on the proficiency test. Recall that even though the proficiency range of the subjects was not very wide (none of them achieved a score that would correspond to an advanced level), some subjects scored quite poorly. Subject 19, listed first in Table 8 only achieved a 1 on the cloze test, in comparison with Subject 32 who scored 17. (See Chapter 5.) By Full Transfer, the expectation of restrictive behavior is an initial state expectation. While none of the subjects tested are at the initial state, the four whose results indicated a more restrictive grammar are among the more advanced of our subject pool. And those who show overgeneralization are in the mid to high range for this group, at least in terms of the cloze test results.

By our assumptions, overgeneralization is a possibility for learners at some intermediate level of IL development. But the restrictive responses at higher levels of proficiency are completely unexpected. Thus, if we take this as a valid result we may need to question our underlying assumptions. Based on the results reported in Table 8, we can characterize three stages of development. Firstly, the subjects of lowest proficiency have acceptance rates between the 33% rejection criterion and the 66% acceptance criterion. Secondly, those with middling proficiency scores have a tendency to overgeneralize. And lastly, a number of the more advanced are restrictive.

Assuming that the results of our cloze test are valid, it seems, therefore, as though there is an early stage in which learners just don't know whether the English resultatives are grammatical or not, as reflected in their indeterminant acceptance rates of between 33% and 66%. We might explain this by speculating that at this

[7] The reason for not excluding these sentences in the earlier reanalysis is that we were asking questions of L1 transfer only; we must, by contrast, exclude them if we ask what effect the target language input might have on interlanguage development.

earlier stage of development, if a task is too hard, a learner may not appeal to any grammatical system, but instead just guess. Then, at a higher level of development the learner may begin to appeal to their Interlanguage grammar – which is based on both L1 transfer and some degree of input-based development.

In our results, this seems to be characterized by overgeneralization. The reason why these learners allow a range of resultatives that is too broad may be that they are not appealing to the exact analogue of the specific resultative when judging a sentence, but instead to the possibility of resultative formation more generally. In other words, the syntax that allows the production of morphologically simple resultatives may suffice to allow all resultatives in English to be accepted. The learner may be using the complex predicate syntactic structure to allow any lexical combination, because despite the lexical restrictions we have found, Chinese is said to productively allow resultative formation. It may be that at this intermediate stage of development, while a learner knows the idiosyncratic meanings of words in the target language, s/he does not know the grammatical properties of the lexical items well enough to know if the equivalent is a verb/adjective combination that would be formed with a morphologically simple resultative or the *de* resultative in the L1.

In the third stage, then, the rejection of resultatives whose analogues require resultative morphology in the native language may indicate that the learner has learned the properties of lexical items well enough to associate them with an exact analogue in the L1. Accordingly, they may enter a stage in which they appeal to the exact analogues of the particular test sentences instead of appealing to the more general ability of the grammar to produce resultatives. And, when that analogue requires functional morphology, the morphologically unmarked sentence in the target language is deemed ungrammatical.

In sum, by this suggestion, the difference is whether there is transfer of exact analogues or transfer of the grammatical rules available for resultative formation more broadly. Assuming that the choice of syntactic form is lexically determined, I have suggested that at first, these learners just don't know which form is analogous so they guess. In time, they begin to hear resultatives in the input, but do not yet know the properties of particular lexical items well enough to know which form is analogous – so they appeal to any form. With more input, however, they come to know the lexical items well enough that they appeal to the analogues of particular strings, causing them to accept or reject resultatives based on the native language. And if the L1 requires

functional morphology, a resultative in the target language without analogous morphology will be rejected. Eventually, we would expect the learners to acquire the properties of individual lexical items such that they become targetlike.

This discussion has been based on the responses to those resultatives whose analogues occur in only one of the two resultative forms in Chinese. In the next subsection, we look at the responses to the rest of the English resultatives that were tested.

6.2.3.2 Results: Transfer of both and neither resultative form

In this section we consider the results of the six resultatives whose analogues are grammatical in both forms in Chinese, as well as the five that cannot occur in either form. Looking firstly at the resultatives that can occur in both forms, Table 9 (overleaf) shows that eleven subjects are restrictive, accepting less than 33% of these sentences. These results are shaded in the table (Subjects 19, 6, 12, 14, 17, 13, 28, 30, 29 and 32). By contrast, there are 11 other subjects who show the opposite tendency and accept these forms at an overall rate of 66% or more, as shown in bold (Subjects 15, 8, 10, 18, 3, 9, 27, 26, 21, 22 and 23).

Since both resultatives are possible in Chinese, it is impossible to comment on the question of transfer of morphology based on these results because we cannot know which analogue is being implicated in transfer. It is interesting to note, however, the large degree of restrictive responses in these results. Given that there are two possible analogues in the L1, by Full Transfer we might expect very low rates of rejection, if any. Moreover, the tendency to be restrictive ranges from the subject with the lowest proficiency to the one with the highest. And similarly, the results showing overgeneralization spans the entire group.

As with the results in the last subsection, though we would like to look at the effect of target language input, it is difficult to do so because of the small number of tokens. There are only two tokens that are uncontroversially grammatical in English, and three that are ungrammatical. These results, given in Appendix H, are too limited to allow us to draw any conclusions.

	Acceptance of sentences with analogues that are possible as BOTH *de* resultatives and morphologically simple resultatives		Acceptance of sentences with analogues that are NOT possible as *de* resultatives nor morphologically simple resultatives	
Subject 19	1 of 5	20%	2 of 5	40%
Subject 6	1 of 5	20%	1 of 5	20%
Subject 11	2 of 4	50%	0 of 3	0%
Subject 15	**3 of 4**	**75%**	**4 of 5**	**80%**
Subject 5	3 of 6	50%	**3 of 4**	**75%**
Subject 8	**5 of 5**	**100%**	1 of 4	25%
Subject 12	1 of 4	25%	3 of 5	60%
Subject 14	0 of 6	0%	2 of 5	40%
Subject 17	1 of 4	25%	1 of 5	20%
Subject 1	2 of 5	40%	2 of 5	40%
Subject 7	3 of 6	50%	**3 of 4**	**75%**
Subject 10	**4 of 4**	**100%**	3 of 5	60%
Subject 13	1 of 5	20%	1 of 4	25%
Subject 18	**4 of 5**	**80%**	0 of 4	0%
Subject 4	2 of 6	33.3%	1 of 4	25%
Subject 3	**4 of 6**	**66.7%**	2 of 5	40%
Subject 16	3 of 5	60%	1 of 5	20%
Subject 2	2 of 5	40%	2 of 5	40%
Subject 9	**4 of 6**	**66.7%**	**4 of 5**	**80%**
Subject 28	1 of 5	20%	2 of 5	40%
Subject 27	**4 of 4**	**100%**	**4 of 4**	**100%**
Subject 20	2 of 5	40%	1 of 5	20%
Subject 30	1 of 3	33.3%	2 of 5	40%
Subject 26	**4 of 6**	**66.7%**	2 of 5	40%
Subject 25	3 of 6	50%	1 of 3	33.3%
Subject 31	3 of 5	60%	2 of 5	40%
Subject 29	1 of 5	20%	0 of 5	0%
Subject 24	3 of 6	50%	0 of 5	0%
Subject 21	**5 of 6**	**83.3%**	2 of 5	40%
Subject 22	**5 of 5**	**100%**	2 of 4	50%
Subject 23	**4 of 5**	**80%**	3 of 5	60%
Subject 32	2 of 6	33.3%	2 of 5	40%

Table 9 Acceptance of English sentences whose analogues are grammatical in both variants in Chinese and those that have no grammatical analogue

Table 9 also shows us the responses to the resultatives that have no grammatical equivalent in Chinese. We can see that ten subjects allow these English resultatives at rates of less than 33% (Subjects 6, 11, 8, 17, 13, 18, 4, 16, 20, 25, 29, 24). From the point of Full Transfer, rejection of these forms would be expected. And there are only five subjects who allow these forms at rates above our 66% criterion (Subjects 15, 5, 7, 9, 27). The rest fall in the middle range with indeterminant

responses. Like the other set of results shown in this table, the response patterns are distributed across the group instead of showing any connection to proficiency level. And the results in terms of grammaticality in English for these five sentences are, again, too limited to be of use. (See Appendix H.)

In sum, the responses to resultatives with analogues that are possible in both Chinese variants, as well as those not possible in either variant, do not reveal a clear picture in terms of transfer and development. Perhaps the most curious result is the fact that some subjects accept resultatives whose analogues cannot occur in any form in Chinese. I will return to this overgeneralization that has emerged throughout the L1 Chinese results in the next chapter when I explore the possibility that overgeneralization may a feature of language development generally, at least when acquisition involves learning the properties of lexical items that are made up of complex Feature bundles.

6.3 Conclusion

In this chapter I have taken a closer look at the properties of resultative formation in Chinese, exploring a second resultative form that includes an obligatory functional morpheme, *de*. The existence of this second form required a reanalysis of the results reported in Chapter 5. The reanalysis suggests two general results. Firstly, the original finding of overgeneralization continues to present itself throughout the results. Secondly, unlike the original analysis of results, there now appears to be a measure of restrictiveness among a few Chinese learners of English who reject English resultatives whose Chinese analogues require the functional *de* morpheme and accept those whose analogues are not morphologically marked (see Table 8). Though there are only four subjects with this result pattern, it is noteworthy when compared to the robust tendency for these English learners to accept all resultatives regardless of their grammatical status in the native and target language.

This result supports the general claim that L1 transfer implicates functional morphology. Moreover, it is consistent with a view that there is transfer of a whole derivation and that transfer of functional morphology that is late inserted in the derivation leads to failure to accept analogous resultatives – at least at some point in IL development. What is unfortunate is that it has not been possible to explore the question of IL development in any credible way in this reanalysis, because when factoring in the second resultative with the variables of grammaticality in each of the

two languages, we are left with too few tokens to be able to see any developmental trends.

One curious result that emerges from this reanalysis is that it is learners of higher English proficiency who are restrictive in their responses. This result was discussed in terms of the process of IL development. In the next and final chapter of this thesis I will return to these and other issues when I suggest avenues for further research that have presented themselves over the course of this investigation.

Chapter 7 Conclusion

7.0 Introduction

The reanalysis of the results of the L1 Chinese learners of the L2 English resultative confirms the overgeneralization found in the original analysis, with many of the test subjects accepting resultatives in English whether they are grammatical in the target and/or native languages or not. Unlike the original analysis, however, there appeared a handful of subjects who were inclined to reject English resultatives. These restrictive results only occurred in response to the set of resultatives which have a morphologically marked analogue in the native language. Thus, these native Chinese learners of English can be said to respond like the handful of Korean native speakers who are also restrictive in their responses to English resultatives.

In my original hypotheses, I expected (some) Korean subjects to disallow English resultatives because in Korean there is a functional result morpheme. Previous second language acquisition studies have suggested that certain syntactic configurations are 'difficult' to acquire if there is a mismatch between the native and target language in terms of construction-specific morphology (Juffs 1998, White et al 1999, Montrul 2001, Whong-Barr & Schwartz 2002). Earlier in this thesis, I argued that this difficulty occurs when there is transfer of the requirement for functional morphology to be inserted from the Syntacticon into the syntactic derivation, and when this requirement is left unmet because the target language has no such morpheme.

And as expected, there was a degree of restrictiveness in the overall results of the Koreans, in contrast with the Chinese subjects. Yet the lack of coherent results among the Chinese subjects required that I take a closer look at Chinese, revealing a second morphologically marked resultative in Chinese. In light of this realization, I reanalyzed the results. But this led to limitations in the analysis. By adding the extra variable of a second resultative form in Chinese, the total number of tokens for each type of resultative became very small. Yet, a comparison of the 9 resultatives that have a morphologically marked variant in Chinese with the 6 that only have a morphologically simple resultative revealed that 4 subjects tended to reject the English resultatives that have morphologically marked analogues in Chinese. Thus, we can conclude that the only time any subject was restrictive in their response to

English resultatives was when (and only when) their native language had an analogue with obligatory result morphology.

While this finding is far from robust, it does indicate that there is L1 transfer of a morphological requirement in second language acquisition. Yet we must still account for why there was so little evidence of this kind of transfer in the experiment. In the next section I explore some of the reasons for these less than conclusive results, examining the interaction between L1 transfer and IL development. I then turn to the issue of transfer of morphology, picking up the discussion from Chapter 4 which claimed that the whole of a syntactic derivation transfers. This discussion will bring us back to the theoretical claims underpinning this thesis, namely, that lexical insertion occurs at three levels in the derivation of a syntactic string and that different types of functional morphology enter the derivation at different levels.

7.1 Combining L1 Transfer with IL Development

As originally laid out, the L2 experiment asked two basic questions: i) is there transfer of functional morphology and ii) what effect would any such transfer have in IL development? The expectation associated with transfer of morphology was that of restrictive responses because of a lack of analogous morphology in the target language. Yet in fact, this is only an initial state expectation. And as none of my test subjects were true beginners it would be surprising if any of them were entirely restrictive. Troubling, however, is the fact that those few subjects who were restrictive were among the most proficient in English, at least as measured by my proficiency cloze test. I remain unable to provide a satisfactory explanation for this.

One complicating factor in this study is the question of how L1 Transfer manifests itself throughout IL development. With Full Transfer/Full Access, the initial state expectations are straightforward since the underlying grammar is posited to be that of the native language. As the Interlanguage develops, however, it is no longer clear how L1 Transfer is expected to manifest itself since language development is implicated over time in a process in which some aspects of language will develop before others.

In thinking about IL development with regard to the acquisition of the English resultative by the Korean and Chinese learners, I suggested two possible patterns. Firstly, there is the possibility that learners could acquire the resultative in a

conservative manner, learning licit verb-result phrase combinations on a one-by-one basis as they encounter them in the input. The other possibility was that when learners begin to find examples of resultatives in English, they could think that any and all verb-result phrase combinations are possible because they are assuming that the syntax that allows the resultatives they hear in the input allows all verb-result phrase combinations in English.

Such overgeneralization could be likened to the overgeneralization that is found among L1 English children.[1] It has been documented that children overextend syntactic structures to allow lexical combinations that are not considered licit in the adult grammar. For example, Gropen, Pinker, Hollander, Goldberg and Wilson (1989) analysed data from the CHILDES database (MacWhinney and Snow 1985) finding overgeneralization of the double object construction. (See also Bowerman 1988; for similar findings.)

(1) a. You finished me lots of rings. (Adam 4;11)

b. Jay said me no. (Ross 2;8)
(Gropen et al. 1989: 217)

Such overgeneralization may be characteristic of the acquisition of syntactic patterns that have lexical-based restrictions. In Chapter 2 I argued that resultative formation in English is determined by verbs that can optionally select a complex Feature bundle which, in turn, gives rise to a resultative structure instantiated by a Predicate Phrase. In other words, resultative formation involves syntactic structure and lexical restrictions. As there are two aspects of resultative formation to be acquired in English, it would, therefore, not be surprising if the two were acquired separately. In other words, since acquisition of the resultative in English involves two steps, there is inevitably going to be stepwise acquisition.

The Predicate Phrase structure is the same for English, Korean and Chinese. Thus, all learners should have no difficulty with the syntax of the English resultative. The lexical properties themselves, however, differ. Removing for the moment the complication of functional morphology, when the subjects hear English verb-result phrase combinations that are not licit in their native languages, such input could cause

[1] Until now, I have suggested that this kind of overgeneralization could be considered UG-constrained. This is because it is found in first language acquisition. But in fact, this overgeneralization may be a result of the learning process and not to do with Universal Grammar itself. Thus it may be more accurate to say it is compatible with UG, but it may not necessarily be *constrained* by UG.

them to think there are no lexical restrictions on resultative formation in English and therefore all resultatives are allowed. The overgeneralization found especially among the Chinese supports this view of IL development.

The question then becomes how learners would ever retreat from overgeneralization. Arguably, such retreat is a natural part of the process of acquiring the lexical properties of words. It is uncontroversial that L2 learners have to acquire the meanings of words. Assuming the theory of the lexicon presented earlier in this thesis, they would also have to acquire i) the Feature combinations that comprise lexical items and ii) any Feature-based selection requirements. There is no reason to expect that learners acquire these aspects of lexical entries when they know the idiosyncratic meaning of a word. And though they may initially associate the lexical properties of the analogous word in their native language, the input is going to indicate that these properties are not the same. So how are the components of words acquired?

Existing research in first language acquisition suggests that the acquisition of the components of verb meaning is itself a stepwise process (Gentner 1978; Choi and Bowerman 1991; Gropen, Pinker, Hollander and Goldberg 1991a, 1991b). For example, in a series of experiments Gropen et al. (1991a) tested English children between the ages of 2;6 and 5;11 to see if they have acquired the full set of properties associated with a particular set of verbs: manner verbs. In other words, they tested whether children have knowledge of verbs that encode not only an action, but the manner of the action as well. For example, the verb *fill* encodes not only the action of filling, but also includes the endstate meaning *to become full.*

To test whether children knew both of these aspects of meaning, Gropen et al. asked children to identify which pictures matched the verbs that were given by the experimenter. The findings suggest a stage in which young children know only part of a verb's meaning. In response to the verb *fill*, for example, all of children chose pictures showing a woman pouring a liquid into a glass, but half of them – the youngest children – chose pictures with an empty glass as an endstate in instead of pictures with a full glass. These results suggest that children know the meanings of verbs in terms of the manner of action that they encode before they acquire the end state determined by the predicate. For our purposes, this study suggests that in the L1 acquisition of semantically complex lexical items, the components of meaning are acquired separately.

The proposal that children acquire word meaning componentially dates back to Clark (1973) whose Semantic Features Hypothesis claims that complex semantic representations of verbs are acquired feature by feature. Psycholinguists have argued that this stepwise learning in first language acquisition is developmental. Slobin (1985), for instance, has proposed that children are innately predisposed to initially assign a one-to-one mapping of meaning onto form. (See Markman (1994) for discussion of similar claims.) Such developmental processes in first language acquisition are often attributed to child development more generally, as a function of some kind of general cognitive maturation. But this does not have to be the case. It may be that the process is not tied to biological maturation, but part of the development of a grammar instead. All language acquisition is a process that takes place over time and is dependent upon input. In fact, it is uncontroversial to say that components of language are learned in a stepwise fashion. Accordingly, it would not be surprising if (native) learners acquire certain aspects of particular lexical items in a stepwise fashion.

This claim could be as true for second language acquisition as it is for first language acquisition. Returning to the acquisition of resultatives, the degree of overgeneralization found in my results supports a claim of stepwise development. Broadly, the two steps are i) the acquisition of the syntactic principles underlying a construction and ii) the lexical restrictions that rule out particular lexical combinations. If a learner has acquired (or transferred) the general syntax of resultatives, but no lexical restrictions, then we might expect any lexical combination that is pragmatically plausible to be allowed by the IL grammar. In time, with the acquisition of the specific grammatical properties of words, learners will come to know the lexical restrictions in the target language so that they eventually judge resultatives like natives speakers. In this way, L2 development of constructions such as the resultative may be characterized by a stepwise process.

What has been left out of this discussion of IL development so far in this chapter is the additional factor of construction-specific morphology. We return to this issue in the next section.

7.2 The Question of Morphology

My initial aim was to investigate whether native speakers of a language like Korean, which requires an overt resultative morpheme, would be able to acquire the morphologically unmarked resultative in English. This question arose from consideration of the existing second language acquisition literature that points to difficulty in acquisition when there are morphological mismatches between the native and target language. This difficulty seems to occur when there are differences in argument-structure-affecting morphology in a way that is qualitatively different than when languages differ in terms of inflectional morphology. While support is growing for the claim that absence of inflectional morphology in the production data of L2 speakers does not reflect an absence of underlying structure, the studies that have found differences where there morphological mismatches of so-called derivational morphology suggest that there may indeed be a deficit in the IL grammar. This difference is compatible with a view in which there are broad categories of functional morphemes that are qualitatively different and which may be inserted at different levels in the syntactic derivation.

For Juffs (1998), White et al. (1999) and Whong-Barr (1999) the differences found in the L2 acquisition data were unexpected and attributed to differences in morphology on a post hoc basis. Others have specifically looked for such differences (Montrul 2000, Slabakova 2001, Whong-Barr & Schwartz 2002, and Oh & Zubizaretta 2003, 2004). Montrul, in fact, claims transfer of morphology but no transfer of argument structure, arguing that when there is a morphological mismatch between the native and target language, there will be difficulty in L2 acquisition. In Chapter 4 I argued that this view lacks explanatory value as it is no more than a descriptive observation based on a Contrastive Analysis-type approach to language acquisition.

In trying to explain why speakers of a language that employs construction-specific overt morphology seem to have difficulty acquiring the construction if the target language lacks such morphology, I suggested we view L1 transfer as implicating not just a static set of rules, but the process of derivation as well. Illustrating with the resultative, when a Korean speaker is faced with an English resultative, by Full Transfer s/he uses the grammar of Korean, starting with the

selection requirements of the verb. Thus, contra Montul, transfer of argument structure is implicated. The verb and its selected arguments will then project complex predicate structure in the syntax. The next step in the derivation, if the IL grammar is based on Korean, is the insertion of an overt resultative morpheme. This is where the mismatch occurs. The English input does not include any construction-specific morpheme. So Korean learners are expected to find all English resultatives ungrammatical – at least initially.

To test this hypothesis, Korean learners of English were contrasted with Chinese learners of English because there is a resultative in Chinese that is grammatical without any supporting construction-specific morphology. While 28.6% of the Koreans learners in my study exhibited a tendency to reject English resultatives regardless of whether they are grammatical in English, only one native Chinese speaker could be characterized as restrictive in this manner (3% of the sample). This result is compatible with the claim that because of L1 transfer, learners whose native language requires construction-specific morphology will (initially) reject the target language variant if it has no such morpheme. Further support for this claim that there is transfer of morphological requirements came in the reanalysis of the Chinese results when those resultatives that only have analogues that occur in the morphologically marked form in Chinese were singled out. In response to those sentences, there were four subjects who were restrictive.

This raises questions of what it means to have a requirement for the insertion of an overt functional morpheme in a construction, especially since the assumption is that the syntax of resultatives is the same (at least for these three languages). This notion that an overt morpheme is inserted in the syntax directly counters some approaches known broadly as distributed morphology (Halle and Marantz 1993). In the distributed morphology approach, abstract features are implicated in syntactic derivation while the insertion of the lexical items themselves is the last step in the derivational process instead of occurring throughout the derivation, as argued in this thesis. Yet in the analysis presented in this thesis, contentful lexical items enter the structure before syntactic derivation and the only difference between resultatives in Korean and English is the overt instantiation of a result morpheme to head the Predicate Phrase.

Strictly speaking, this counters a distributed morphology approach since insertion of lexical material in the syntax is required as a kind of licensor of syntactic

structure. However, it would not be impossible to accommodate distributed morphology. Instead of insertion of lexical material in the syntax, there is no reason why there couldn't be insertion of lexical features in the syntax, which are supplied with overt material at Spell Out. While this is certainly a possibility, the framework adopted in this thesis was one in which lexical insertion occurs in the actual derivation.

Support for a model in which lexical insertion occurs throughout the derivation was given in Chapter 3 where I argued that in Korean, the head the Predicate Phrase is overtly filled by a resultative morpheme, *-key*, as required for grammaticality. Additionally, I explored the claim that there are two resultative forms in Korean: so-called nominative resultatives and accusative resultatives. In the former, the functional *-key* is required to license the nominative-marked object. It is this syntactic licensing requirement that led me to claim that *-key* is inserted in the syntax. This contrasts with accusative resultatives; the latter do not require the resultative morpheme to license the object, but instead, only to satisfy a language-specific PF restriction in which no bare predicate stems are allowed in Korean. Thus the *-key* of accusative resultatives was argued to be late inserted after syntax, at PF.

This analysis of resultatives in Korean led to the hypothesis that Korean learners would respond differently to resultatives whose Korean equivalents are of nominative resultative variant and those with accusative analogues. The reason is that if the Korean resultative morpheme is inserted in the syntax as a licensor in the case of nominative resultatives, then failure to supply this morpheme would mean that the derivation could not continue, and thus there would be failure in the grammar. If, by contrast, the morpheme is required after syntax for phonological reasons, as was argued for accusative resultatives, then the entire syntactic derivation could proceed without any such failure in the grammar.[2]

Yet analysis of the L2 English results do not reveal any qualitative difference between those resultatives whose analogues are nominative and those that are accusative in Korean. Thus there is no support for a claim that transfer of construction-specific morphemes required for syntactic derivation and those required post-syntactically will have qualitatively different effects in L2 acquisition. This

[2] This expectation is based on the unproblematic assumption that Korean learners restructure their L1-based requirement of morphological closure for predicates as soon as they acquire 'bare' verbs in English like regular 1st and 2nd person present tense forms.

result could be taken as evidence against the framework of multi-level insertion,. Indeed, critics could argue that these data are evidence for another approach. In fact, this thesis has assumed without question a derivational approach to syntax. One wonders how these language and Interlanguage facts would be dealt with by a representational approach like Head-Driven Phrase Structure Grammar (HPSG) of Pollard and Sag (1994), or Lexical Functional Grammar (LFG) of Bresnan (2001).

Yet, the problem remains that learners seem to have difficulty where there are morphological mismatches between the native and target language – at least in terms of argument structure affecting morphology. Further research is needed, therefore, before any strong claims regarding qualitative differences in transfer of different types of morphemes can be made.

The resultative provided a good focus for the questions posed in this thesis because it implicates not only syntax and morphology but the lexical properties of words as well. In the next section I briefly return to the discussion of the lexical restrictions on resultative formation in light of the findings of the experimental study.

7.3 The Lexical Restrictions on Resultative Formation

One of the research questions addressed in this thesis was why certain verb-result phrases are allowed in English, while others are not. Emonds' (2000) Feature-based approach allowed us to explore the lexical restrictions on English resultative formation. In that approach, lexical items instantiate syntactically relevant cognitive Features, with subcategorization as a mechanism that specifies Feature-based selection. Using this machinery, I suggested that in resultative formation, verbs bearing the Feature [ACTIVITY] select a complex Feature bundle comprised of the Features [CONCRETE] and [MAXIMAL ENDPOINT] which are instantiated by the object and result phrase, respectively. In addition, selection for an [INCHOATIVE] Feature gives rise to the change-of-state interpretation of resultatives even though this Feature is not overtly instantiated by any morpheme in English.

I argued that the selection of these Features results in the projection of complex predicate structure in syntax, following Bowers (2001). Bowers argues that the predication relationship between subjects and predicates that exists in all clauses is instantiated structurally as a Predicate Phrase above VP. He goes on to argue that the 'small clause' of a complex predicate like the resultative is a second Predicate Phrase

which occurs without an accompanying VP. In English, I claim the head of the Predicate Phrase houses the [INCHOATIVE] Feature, but this Feature is not instantiated overtly. The [CONCRETE] and [MAXIMAL ENDPOINT] Features are housed in a result phrase, normally including an AP, and instantiated overtly by lexical items containing these Features.

My discussion of the lexical restrictions on resultative formation in this thesis was limited to English. Originally I assumed that there were no such restrictions in Korean nor Mandarin Chinese because the existing literature emphasized the productive nature of resultative formation in these two languages. Yet subsequent discussions with native speaker informants soon led me to conclude that all three languages have language-specific Feature-based restrictions because certain lexical combinations were systematically disallowed by native speakers of both Korean and Chinese. The exact nature of these restrictions needs investigation, however, and is left for further research.

7.4 Regular Structural Patterns

One final area of discussion that needs final comment is that of the notion of *construction*, or regular structural pattern. Discussions with native speaker informants in all three languages led me to ask what it means to call the resultative a 'construction.' I reasoned that the resultative has a structure that is easily identified by the speaker because it conforms to a structural pattern that is regular in terms of form (verb, object and result phrase) and in terms of gross meaning: some agent performs some action on some object with the effect that the object changes to some new resulting state.

I also noticed that some resultatives become associated with specific idiomatic lexical items (e.g. *paint the town red*), while others do not extend the meaning of their constituent parts, but are used so frequently that they sound odd if one of the components is changed (cf. *shoot him dead* and **strangle him dead*). My contention was that for this latter tendency an association of words in which certain lexical combinations become familiar is relevant to E-language and not I-Language. As such, it may be irrelevant to the discussion of the syntax of resultative formation, but entirely relevant when interacting with native speakers. Thus, as this thesis included

an experiment involving speakers of English, Korean and Chinese, it was impossible to limit the discussion strictly to the realm of theory.

In my experiment, I found that the native English speakers did not all agree on the grammaticality of resultatives. Though I have no way of verifying this claim, I speculate that this variation in judgement is a product of the degree of familiarity the subjects have with particular resultative combinations. Those that are frequently used by a community of speakers may be deemed more acceptable than those that are not. Moreover, if this added factor of familiarity can affect the judgements of native speakers, it may equally affect the judgements of the L2 English learners, thereby accounting for some of the unexpected responses in my experimental study. In sum, it seems likely that the results of my study were affected by extra-linguistic factors of language use.

7.5 Conclusion

In this thesis I investigated resultative formation in English, Korean and Chinese, arguing for a single underlying syntactic structure, with differences at the level of lexical selection and whether the functional result morpheme is overt or null. I then turned to second language acquisition, asking whether the properties of the English resultative can be acquired by Korean and Chinese learners. I hypothesized that there would be differences between the Korean and Chinese learners because Korean resultative formation includes a functional result morpheme. Assuming a Full Transfer position, I expected this morphological requirement to transfer when Korean learners began to acquire English such that English resultatives would be deemed ungrammatical.

Though there was a degree of support for the 'initial state' hypothesis that Koreans, but not Chinese will reject all English resultatives, complications arose when looking at the question of L1 analogues more specifically and when considering the developmental paths of the subjects. My assumption was that by Full Transfer, the initial state for Chinese learners of English would be to accept resultatives whose analogues were licit in Chinese and reject those that were not. Yet evidence for this was not found in the L1 Chinese results. Therefore, I re-examined resultative formation in Chinese and discovered that Chinese has a second resultative that is morphologically marked. With this new understanding of Chinese, I was able to find

some support for the claim that transfer of a morphological requirement will cause learners to reject analogous sentences in English.

A second area of investigation involved the question of Interlanguage development. I was interested in seeing if the IL development of the subjects showed evidence for a conservative input-matching learning strategy or one of overgeneralization. The former could be viewed as evidence for a non-modular process outside the domain of the language module proper, if learners merely repeat utterances heard in the input. The latter, by contrast, could be seen as applying a general syntactic rule that selection of a complex Feature bundle is projected as a complex predicate – without regard for lexical restrictions. As this kind of overgeneralization is commonplace in first language acquisition, the latter could be seen as a natural language learning procedure, and as such, as a property of the language module. Unfortunately, none of the initial results indicated a clear developmental path within either of the two language groups. Yet, there was a general tendency of overgeneralization in the data which suggests a developmental process in second language acquisition that can be likened to that of native first language acquisition.

Appendix A: Test Sentences by Type[1]

Set GGG: Resultatives grammatical in English, Korean and Chinese

(1) Transitive
   a. Mary washed the dishes clean.
   b. Mary cut Sarah's hair short.
   c. *Mary smashed the black pepper fine.*

(2) Intransitive
   a. *Mary ran her feet sore.*
   b. *Mary danced her shoes worn.*
   c. *The rooster crowed Mary awake.*

Set UUU: Resultatives ungrammatical in English, Korean and Chinese

(3) Transitive
   a. * Mary dragged the log smooth.
   b. * Mary dropped the glass broken.
   c. * Mary's mother praised her proud.

(4) Intransitive
   a. * Mary snored Sarah awake.
   b. * Mary waited her mother impatient.
   c. * The principal shouted Mr. Jones angry.

Set GUU: Resultatives grammatical English, ungrammatical in Korean and Chinese

(5) Transitive
   a. *Mary watered the flowers flat.*
   b. The dryer spun her jacket dry.
   c. *The hot coals burned Carl's feet blistered.*

(6) Intransitive
   a. Sarah laughed herself sick.
   b. Mary worried her mother sick.
   c. Carl drank himself stupid.

Set UGG: Resultatives ungrammatical English, grammatical in Korean and Chinese

(7) Transitive
   a. * Carl banged the metal plate dented.
   b. * Mary boiled the soup salty.
   c. * Sarah cut the painting destroyed.

(8) Intransitive
   a. * Mary ate her stomach sick.
   b. * Mary shouted herself fainted.
   c. * Mary cried the handkerchief soggy.

[1] The italicized examples were excluded from the analysis of results because they were deemed ungrammatical by the 19 native English control subjects, contrary to expectation.

Subject resultatives

(9) a. * Mary washed the dishes tired.
b. * Mary's mother saw her relieved.
c. * Mary tasted the soup upset.
d. * Mary cleaned up the glass happy.
e. * Mary's mother apologized grateful.
f. * Mary accepted the chocolate from Sarah happy.

Grammatical object depictives

(10) a. Mary wore the jacket dry.
b. Mary wore the jacket wet.
c. In Sarah's dream, the girls ate the rabbit raw.

Ungrammatical object depictives

(11) a. * Mary bought the watch stolen.
b. * Mary used the camera broken.
c. * Bob chose the drink healthy.

Grammatical subject depictives

(12) a. Mary walked the dog tired.
b. Mr. Jones taught the class drunk.
c. Mr. Jones left the school angry.

Ungrammatical subject depictives

(13) a. * Mary tried to please her mother determined.
b. * Mary wrote her short story pretty.
c. * Mary's mother took dance classes young.

Grammatical attributive adjectives

(14) a. Mary ordered the mushroom pizza.
b. In her dream, Mary kissed the silly clown.
c. Bob wiped the dirty table.

Ungrammatical attributive adjectives

(15) a. * Mary shook the asleep girl.
b. * Mary saw the awake boy.
c. * The terrible event changed the afraid boy.

Appendix B: Analogues of Test Sentences in Korean

Set GGG: Resultatives grammatical in English, Korean and Chinese
Transitive

(1) a. Mia-nun cepsi-lul kkaykkusha-key ssis-ess-ta
Mia-TOP dishes-ACC clean-KEY wash-PST-DECL
'Mia washed the dishes clean.'

b. Kim-un meli-lul ccalp-key calla-ss-ta
Kim-TOP hair-ACC short-KEY cut-PST-DECL
'Kim cut (her) hair short.' Also 'Kim cut (someone else's) hair short.'

c. Mia-nun kochwu-lul kop-key ppah-ass-ta
Mia-TOP pepper-ACC fine-KEY smash-PST-DECL
'Mia smashed the pepper fine.'

Intransitive

(2) a. ku swuthalk-tul-un ay-tul-i cameyse kkaykey wuletay-ss-ta
the roosters-PL-TOP children-PL-NOM awake-KEY cry-PST-DECL
'The roosters crowed the children awake.'

b. Mia-nun sinpal-i talh-key chwumchwuetay-ss-ta
Mia-TOP shoes-NOM worn-KEY dance-PST-DECL
'Mia danced her shoes thin/worn.'

c. Chris-nun palpatak-i talh-key tally-ess-ta
Chris-TOP feet-NOM worn-KEY run-PST-DECL
'Chris ran her feet sore. (lit.=worn)' (Kim & Maling 1997: 192 (8))

Set UUU: Resultatives ungrammatical in English, Korean and Chinese
Transitive

(3) a. * mal-i thongnamwu-lul pwutulep-key kkul-ess-ta
horse-NOM logs-ACC smooth-KEY drag-PST-DECL
'The horse dragged the logs smooth.'

b. * wuli apeci-nun wuli hyeng-ul cilangsulep-key chingchanhye-ss-ta
our father-TOP our brother-ACC proud-KEY praise-PST-DECL
'Our father praised our brother proud.'

c. * Mia-nun ku yulican-i kkayeci-key ttelettuly-ess-ta
Mia-TOP the glass-NOM broken-KEY drop-PST-DECL
'Mia dropped the glass broken.'

Intransitive

(4) a. * Mia-nun Yong-i cameysekkay-key kholulkolh-ass-ta
Mia-TOP Yong-NOM awake-KEY snore-PST-DECL
'Mia snored Yong awake.'

b. * ku sensayngnim-un haksayng-tul-ul hwana-key solichy-ess-ta
the teacher-TOP student-PL-ACC angry-KEY shout-PST-DECL
'The teacher shouted the students angry.'

c. * Mia-nun Yong-i antalha-key kital-ess-ta
Mia-TOP Yong-NOM impatient-KEY wait-PST-DECL
Lit. = 'Mia waited for Yong impatient/fretting.' (=Yong became impatient)

Set GUU: Resultatives grammatical English, ungrammatical in Korean and Chinese
Transitive

(5) a. * Mia-nun kkoch-ul/-i phyengphyengha-key mwulcwu-ess-ta
Mia-TOP flower-ACC/-NOM flat-RES water-PST-DECL
'Mia watered the flowers flat'

b. * ku kencok-i sithu-lul/-ka malu-key tol-ass-ta
the dryer-NOM sheets-ACC/-NOM dry-RES spin-PST-DECL
'The dryer spun the sheets dry.'

c. * ttukewun senthak-tul-i nay palpatak-ul/-i mwulcipna-key
hot coals-PL-NOM my feet.bottom-ACC/-NOM blistered-RES
thaywe-ss-ta
burn-PST-DECL
'The hot coals burned the bottoms of my feet blistered.

Intransitive

(6) a. * Mia-nun kuneyuy emma-lul/-ka aphu-key kekcengha-ss-ta
Mia-TOP her mother-ACC/-NOM sick-RES worry-PST-DECL
'Mia worried her mother sick.'

b. * Mia-nun elisen-key masy-ess-ta
Mia-TOP stupid-RES drink-PST-DECL
'Mia drank herself stupid.'

c. * Mia-nun mengchengha-key wus-ess-ta
Mia-TOP silly-RES laugh-PST-DECL
'Mia laughed herself silly.'

Set UGG: Resultatives ungrammatical English, grammatical in Korean and Chinese
Transitive

(7) a. ku hwanan yeyswulka-nun ku kulim-ul phakoytoy-key calla-ss-ta
the angry artist-TOP the picture-ACC destroyed-KEY cut-PST-DECL
'The angry artist cut the painting destroyed.'

b. Mia-nun chelphan-ul ttwulheci-key naylichye-ss-ta
Mia-TOP metal.plate-ACC dented-KEY smash-PST-DECL
'Mia smashed the metal plate dented.'

c. Mia-nun kwuk-ul cca-key kkulhye-ss-ta
Mia-TOP soup-ACC salty-KEY boil-PST-DECL
'Mia boiled the soup salty.'

Intransitive

(8) a. ku-nun ku sonswuken-i cec-key wul-ess-ta
he-TOP the handkerchief-NOM soggy-KEY cried-PST-DECL
'He cried the handkerchief soggy.' (Kim 1993)

b. ku-nun pay-ka aphu-key mek-ess-ta
he-TOP stomach-NOM hurt-KEY eat-PST-DECL
'He ate his stomach sick.' (Kim 1993:473 ())

c. Chris-ka kkamulachi-key solichi-ess-ta
Chris-NOM fainted-KEY shout-PST-DECL
'Chris shouted (himself) fainted.' (Kim & Maling 1997: 194 (15))

Appendix C: Analogues of Test Sentences in Mandarin Chinese

Set GGG: Resultatives grammatical in English, Korean and Chinese
Transitive:

(1) a. Mary xi ganjing le panzi
Mary wash clean PRF dishes
'Mary washed the dishes clean.'

b. Mary jian duan le Sarah-de toufa
Mary cut short PRF Sarah-POS hair
'Mary cut Sarah's hair short.'

c. Mary mo hao le hei hujiao
Mary smash fine PRF black pepper
'Mary smashed the black pepper fine.'

Intransitive

(2) a. Mary pao suan le jiao
Mary ran sore PRF feet
'Mary ran her feet sore.'

b. Mary tiao huai le ta-de xiezi
Mary jump worn PRF she-POS shoe
'Mary danced her shoes worn.'

c. gongji tijiao jiao xing le Mary
rooster crow crow awake PRF Mary
'The rooster crowed Mary awake.'

Set UUU: Resultatives ungrammatical in English, Korean and Chinese
Transitive

(3) a. * Mary ladong ping le mutiao
Mary pull smooth PRF log
'Mary dragged the log smooth.'

b. * Mary shuai sui le bolibei
Mary drop break PRF glass
'Mary dropped the glass broken.'

c. * Mary-de mama kua jiaoao/zihao le ta.
Mary-POS mother praise proud PRF her
'Mary's mother praised her proud.'

Intransitive

(4) a. * Mary dahan chao xing le Sarah
Mary snore wake up PRF Sarah
'Mary snored Sarah awake.'

b. * Mary deng bunaifan le tade muqin
Mary wait impatient PRF her mother
'Mary waited her mother impatient.'

c. * xiaozhang chao shengqu le Mr Jones.
principal shout angry PRF Mr Jones
'The principal shouted Mr. Jones angry.'

Set GUU: Resultatives grammatical English, ungrammatical in Korean and Chinese

Transitive

(5) a. * Mary jiaoshui dao le hua
Mary water flat prf flower
'Mary watered the flowers flat.'

b. * hongganji jiao gan le ta de jiake
dryer spin dry PRF she POS jacket
'The dryer spun her jacket dry.'

c. * shaotang de meitan tang qipao le Carl de jiao
hot-ADJ coal burn blistered PRF Carl POS feet
'The hot coals burned Carl's feet blistered.'

Intransitive

(6) a. * Sarah xiao teng le (ziji)
Sara laugh sick PRF herself
'Sarah laughed herself sick.'

b. * Mary danxin bing le ta de mama
Mary worry sick PRF she POS mother
'Mary worried her mother sick.'

c. * Carl he hunmibuxing le (ta ziji)
Cark drink stuped PRF himself
'Carl drank himself stupid.'

Set UGG: Resultatives ungrammatical English, grammatical in Korean and Chinese

Transitive

(7) a. Carl da ao le jinshu ban
Carl bang dent prf metal plate
'Carl banged the metal plate dented.'

b. Mary zhu xian le tang
Mary boil salty prf soup
'Mary boiled the soup salty.'

c. Sarah jian huai le hua
Sarah cut destroyed PRF painting
'Sarah cut the painting destroyed.'

Intransitive

(8) a. Mary chi shang le wei
Mary eat sick PRF stomach
'Mary ate her stomach sick.'

b. Mary jiao yunguoqu le ziji
Mary shout fainted PRF herself
'Mary shouted herself fainted.'

c. Mary ku shi le shoupa
Mary cry soggy PRF handkerchief
'Mary cried the handkerchief soggy.'

Appendix D: Test Instrument

Personal Details

1. Date of birth Day ..... Month ..... Year .....

2. Place of birth City ..... Country .....

3. What countries have you lived in (other than your native country)? for how long?

4. What is (are) your native language(s)?

5. If you have more than one native language, which language is dominant, if any?

6. What second language(s) do you speak? For each language, indicate your approximate level (beginner, intermediate, etc).

If your native language IS NOT ENGLISH, please complete the below table.

7. Please describe your (formal and informal) study of English by filling in this table:

Type of instruction/experience	**Duration**
Ex.1: *English class in secondary school, approx. 5 hours per week of instruction*	*3 years*
Ex. 2: *Traveled in Australia*	*2 months, 2 weeks*

8. Finally, if there is anything else about your background that has anything to do with language and might be relevant, please explain.

Instructions read to participants

You are going to be presented with a set of sentences in English and asked whether or not you find each sentence a natural or possible sentence in English. To help you, you will listen to a story. After each part of the story there will be two sentences for you to think about.

Here is an example:

Example 1:
Fred was unhappy because he had a bad day at work. In fact, he was very unpleasant to his girlfriend when she tried to cheer him up. Later he went out to buy her some flowers as an apology. He left them on the table where she could see them.

1 Fred on the table flowers put.
2 Flowers put on the table Fred.

On the answer sheet, circle the number that corresponds to your judgment for each sentence. If you have no idea, then circle the X, for 'Don't know'.

Hopefully you chose negative numbers for each of the sentences. Even though we might be able to understand the meaning of each sentence, neither is a natural sentence in English.

Notice also that even though there are two sentences, you are not being asked to compare them to each other. Instead, each sentence should be judged isolation.

Now try this second example. Record your answers on the answer sheet.

Example 2:
Susan made an appointment with her teacher to discuss her exam results. She was nervous and knocked on the office door very quietly. But no one answered, so she knocked again.

3 Twice, Susan went to the office and knocked on the door.
4 Susan wanted to discuss her exam results with her teacher.

What numbers did you choose? You should have chosen a negative response for sentence 3. Even though the sentence is grammatically correct in comparison to the sentences in Example 1, it is not correct in terms of the meaning of the passage. Sentence 4 on the other hand, is correct and natural, so you should have chosen a positive number for it.

Here is another Example:

Example 3:
One of Tony's horses often kicks people. Yesterday Tony tried to get out of the way when the horse started to kick, but he couldn't. The horse's kick was so powerful that it almost broke Tony's leg.

5 Tony got kicked in the leg by the horse.
6 The horse kicked Tony's leg.

Did you choose positive or negative numbers? Sometimes there are several possible ways to say the same thing. Even though one sentence might sound *more* natural than the other, both of them are still natural and possible sentences in English. So hopefully you chose positive numbers for both these sentences. And once again, don't worry about how the two sentences compare to each other.

Now try this last example:

Example 4:
Max locked himself out of his room. But it wasn't a problem because he had his wallet with him. Using a credit card, he was able to loid the door and get his keys.

7 Max got locked out of his room.
8 Max loided the locked door with a credit card.

Both of these sentences are actually possible, so each should have been given a positive response. However, you might not have known the meaning of the word 'loid' in the second sentence. If there is a word in the sentence that you don't know, then you should choose the 'Don't know' option on the answer sheet.

One last point: When you are trying to decide about a sentence, don't spend too much time thinking about it. In fact, it would be better if you tried to decide quickly, and if you trusted your first impressions.

Here are some more examples for practice:

Practice Examples:

Ray lives outside a big city. He usually takes the bus to work, but the bus drivers were on strike last week, so he drove to work. Last Friday he got stuck in traffic on his way to work. He arrived 30 minutes later than he was supposed to.
1. Ray was late for work.
2. Ray had to drive to work last week.

This week Ray was able to take the bus to work again. This morning, a very old woman got on the bus, but there were no seats left. Ray immediately jumped up to let her sit down. Ray stood all the way to work.
3. Ray gave up the old woman for his seat.
4. Ray usually rides the bus to work.

Yesterday Ray's brother Leo came to see him at his office. Everyone was surprised when they heard that Ray and Leo are brothers because they look so different. Ray has red hair and Leo is blond. In addition, Leo is much shorter than Ray.
5. Leo has red hair and Ray has blond hair.
6. Ray taller much than his brother is.

On the weekend it was Ray's birthday. His wife bought him a bike for his birthday because she wants him to get more exercise. Ray plans to go on rides in the countryside in the future.
7. Ray got a bike for his birthday.
8. Ray's wife bought for his birthday.

Experimental Test

Mary is 14 years old. She studies very hard and she's always very helpful at home. She often helps her mother cook dinner at night. And after dinner every night she makes sure the dishes are clean even though she is usually very tired.

1. Mary washes the dishes clean.
2. * Mary washes the dishes tired.

Last week Mary's class went camping. She was so excited that she took many pictures – but then she realized that the camera was broken. And on the first night she found that camping is hard work! She needed firewood, but there was none nearby. She finally found a log, but had to drag it so far that it was smooth on the bottom by the time she got it to the campsite.

3. * Mary dragged the log smooth.
4. * Mary used the camera broken.

Mary and her friends took lots of junk food and chocolate on the camping trip. After dinner her friend Sarah was so full that she gave her chocolate to Mary. Mary happily accepted Sarah's chocolate and ate it all. Later that night Mary couldn't sleep because she felt sick in the stomach.

5. * Mary accepted chocolate from Sarah happy.
6. Mary ate her stomach sick.

Though she felt ill, Mary finally fell asleep. But she woke up soon after because Sarah was snoring really loudly. Mary covered her head with her sleeping bag and went back to sleep. She then had a dream. She dreamt that she was at the circus and kissed a silly clown in front of everyone.

7. * Sarah snored Mary awake.
8. In her dream, Mary kissed the silly clown.

The next morning Mary told Sarah about kissing the clown in her dream. Sarah laughed and laughed until she felt sick. Then she suddenly remembered her own dream from the night before. She dreamt that they got lost in the woods for days and were so hungry that they caught a rabbit and ate it without even cooking it.

9. In Sarah's dream, the girls ate the rabbit raw.
10. Sarah laughed herself sick.

That day, Mary and her classmates played football all day. Mary wasn't used to doing so much running. At the end of the day her feet were really sore from running. She went back to her tent to lie down but found another girl sleeping in her sleeping bag. Mary shook the girl until she woke up.

11. * Mary shook the asleep girl.
12. Mary ran her feet sore.

Mary laid down and fell asleep immediately. But something woke her up early the next morning. It was a rooster that was crowing really loudly. She sat up wondering what that sound was. She saw that she wasn't the only one who had been woken up. A boy from her class was also awake and looking around to see where the sound was coming from.
13. The rooster crowed Mary awake.
14. * Mary saw an awake boy.

On the last night of the camping trip it was raining and Mary's jacket got really wet. But she didn't have another one, so she had to wear it anyway. When Mary was walking to her tent some naughty boys thought it would be funny to scare her. They waited behind a tree and then jumped out to scare her. Mary was so scared that she shouted really loudly – and then fainted!

15. Mary wore the jacket wet.
16. * Mary shouted herself fainted.

Mary was gone on the camping trip for three days. She completely forgot that she had promised to phone her mother while she was gone. By the second day her mother had become very worried. On the third day Mary's mother was sick from worrying so much. That night when she saw Mary walk through the front door she was so relieved.

17. * Mary's mother saw her relieved.
18. Mary worried her mother sick.

Mary was sorry that she upset her mother. That next day she saw a man selling watches in the street and thought she'd buy one for her mother. She was sure that they had been stolen because they were so cheap. But she bought one anyway. Back at home she went out to the garden to pick some flowers. They looked dry so she watered them. But the force of the water was too strong and the flowers fell over and laid flat on the ground.

19. * Mary bought the watch stolen.
20. Mary watered the flowers flat.

Feeling badly about ruining the flowers, Mary tried to think of something else to please her mother. First, she cooked soup for dinner. Mary knows that her mother doesn't like black pepper very much. So she smashed the pepper until it was a fine

powder to make it taste less strong. By the time she finished, she was really tired, but she took the dog for its daily walk anyway.

21. Mary smashed the black pepper fine.
22. Mary walked the dog tired.

After the walk she tasted the soup. It didn't taste very good, so she added some salt and turned up the heat. When it started to boil she added more salt. Unfortunately, she added so much salt that the soup became too salty to eat. When Mary tasted the soup she became really upset.

23. * Mary tasted the soup upset.
24. * Mary boiled the soup salty.

Things just seemed to keep going wrong for Mary. She was so determined to please her mother. But she had ruined the flowers and failed to make soup. Mary was so upset that she began to cry. She cried so much that her handkerchief became soggy with tears.

25. * Mary cried her handkerchief soggy.
26. * Mary tried to please her mother determined.

After crying so much she was thirsty. She filled a glass with cold water, but would you believe it? She dropped the glass and it broke into hundreds of pieces. What could Mary do? She got a broom and began to sweep up the mess. While sweeping she realized that there really was no reason to be so upset. By the time she finished cleaning up the glass she was happy again.

27. * Mary cleaned up the glass happy.
28. * Mary dropped the glass broken.

Mary decided to order pizza for dinner. She chose mushroom because her mother loves mushrooms. Just then her mother came home and was really hungry. She started to make some toast, but Mary insisted that she should wait for the pizza to arrive. But her mother was really hungry and got impatient with Mary for making her wait.

29. Mary ordered the mushroom pizza.
30. * Mary waited her mother impatient.

When the pizza arrived, Mary's mother felt badly for being impatient with Mary. She apologized and told her how grateful she was to have such a good daughter. Then she praised Mary for all the things she does to help around the house. She praised her so much that Mary began to feel really proud.

31. * Mary's mother praised her proud.
32. * Mary's mother apologized grateful.

At school the next day each student had to do a project. Mary wrote a short story. Sarah did a painting of Mary because Mary is very pretty. But Sarah used too much paint. So she tried to scrape some off with some scissors. But she accidentally cut a

hole in the painting and completely destroyed it.

33. * Mary wrote her short story pretty.
34. * Sarah accidentally cut the painting destroyed.

Mary and Sarah are in acting class together. Mr. Jones is a good acting teacher, but he has a drinking problem. That day he was drunk in class. It wasn't too much of a problem until he decided to cut Sarah's hair because he wanted her to play the part of a boy. Sarah's hair was so short that she did look like a boy.

35. Mr. Jones cut Sarah's hair short.
36. Mr. Jones taught the class drunk.

When the principal heard that the acting teacher was drunk, he came to the class and began to shout at Mr. Jones. But Mr. Jones got really angry because he thought it was wrong for the principal to shout at him in front of the students. Mr. Jones was so angry that he left the school without finishing the class.

37. * The principal shouted Mr. Jones angry.
38. Mr. Jones left the school angry.

After acting class Mary had dance lessons. Mary's mother took dance class when she was a young girl and thought it would be good for Mary to dance too. Mary has been dancing for three years. When she put on her dancing shoes that day, she realized that her shoes were worn out from three years of dancing.

39. Mary danced her shoes worn.
40. * Mary's mother took dance classes young.

On her way home after her dance lesson Mary realized that the jacket she was wearing was still dirty from camping. So she did laundry. Mary usually hangs the clothes outside because she doesn't like how the automatic dryer spins the clothes. But since it was nighttime, she used the dryer. And her jacket dried very quickly.

41. Mary wore the jacket dirty.
42. The dryer spun her jacket dry.

The next day in school, Mary's class watched a video about a boy named Carl and his friend Bob. In the film, Carl and Bob went to a party. Carl drank so much beer that he began to act really stupid. Bob, on the other hand, is worried about being healthy and chose orange juice every time he went to the bar.

43. Carl drank himself stupid.
44. * Bob chose the drink healthy.

At first Carl was just acting silly. But then he began throwing and smashing things. Bob spent the night cleaning up after Carl. At one point Carl even took a metal plate off the wall in the bar and banged it until it had a big dent in it. Bob didn't know what to do. He wiped up the beer that had spilled on their table and then tried to persuade Carl to go home.

45. Carl banged the metal plate dented.
46. Bob wiped the dirty table.

But Carl became really crazy. He took some coals out of the fireplace and insisted that he could walk on hot coals with no shoes. But as soon as the coals touched the bottom of Carl's feet, they caused painful blisters. After this terrible event, Carl finally became afraid of his own behaviour and decided never to drink again. Mary thought the film was a bit silly.

47. * The terrible event changed the afraid boy.
48. The hot coals burned Carl's feet blistered.

Cloze Test

Instructions: Fill in each blank with ONE word ONLY.

Getting around the city was easy because there were plenty of _____ and trams, and they nearly _____ ran on time. But when _____ went up to the skiing _____, it took us ages to _____ there because the roads were _____ narrow and there were some _____ jams. But it was worth _____. The place was just fabulous; _____ were snow-covered peaks all around _____, and the views were spectacular.

_____ chalet was also quite spacious, _____ it had an excellent fitted _____ and modern bathroom. However, the _____ wasn't the most comfortable in _____ world, and we both felt _____ the sofa and armchairs did _____ encourage relaxation at the end _____ a day's skiing.

And for _____, we did quite well. Not _____ well as some of the _____ , of course. They picked it _____ so easily, and by the _____ of the holiday were incredibly _____. Anyway, we hired the skis _____ all the other stuff—it _____ a fortune as you predicted – _____ had some lessons from a _____ nice instructor. He was very _____ with everyone and we were _____ at the way some people _____ him every time they fell _____. It was stupid of them _____ quite unnecessary.

We were on _____ slopes all day and very _____ that it was cold and _____ most of the time – ideal _____ skiing. The travel agency had _____ going this time of year, _____ in our case they were _____ right.

Answer Sheet

	Very unnatural/ impossible	Unnatural/ impossible	Somewhat unnatural/ impossible		Almost natural/ possible	Natural/ possible	Very natural/ possible	Don't know
1	-3	-2	-1		1	2	3	X
2	-3	-2	-1		1	2	3	X
3	-3	-2	-1		1	2	3	X
4	-3	-2	-1		1	2	3	X
5	-3	-2	-1		1	2	3	X
6	-3	-2	-1		1	2	3	X
7	-3	-2	-1		1	2	3	X
8	-3	-2	-1		1	2	3	X

Etc.

Appendix E: Transitive vs. Intransitive Results of Individual Korean and Chinese Subjects

Korean Subjects	Transitive Resultatives			Intransitive Resultatives		
	Accurate	Tokens	%	Accurate	Tokens	%
Sub 6	4	9	44.44	4	9	44.44
Sub 1	4	9	44.44	7	9	**77.78**
Sub 2	4	6	**66.67**	5	9	55.56
Sub 7	6	9	**66.67**	5	9	55.56
Sub 10	5	8	62.50	4	8	50.00
Sub 13	7	8	**87.50**	3	9	33.33
Subj 3	7	9	**77.78**	3	9	33.33
Subj 11	4	9	44.44	5	9	55.56
Subj 12	4	9	44.44	6	9	**66.67**
Subj 14	6	9	**66.67**	4	8	50.00
Subj 5	5	9	55.56	3	9	33.33
Subj 8	6	9	**66.67**	3	9	33.33
Subj 4	3	9	33.33	2	9	22.22
Subj 9	6	9	**66.67**	8	9	**88.89**

Korean Subjects Accuracy on Transitive vs. Intransitive Verbs

Note:
In both tables in this Appendix, the shaded results are those with higher accuracy on transitive resultatives than on intransitive resultatives. The bolded results indicate acquisition (i.e. equal 66% or higher).

Chinese Subjects	Transitive Resultatives			Intransitive Resultatives		
	Accurate	Tokens	%	Accurate	Tokens	%
Subj 19	6	8	**75.00**	4	9	44.44
Subj 6	6	8	**75.00**	3	9	33.33
Subj 11	3	8	37.50	3	6	50.00
Subj 15	3	8	37.50	4	9	44.44
Subj 5	4	9	44.44	3	8	37.50
Subj 8	4	8	50.00	1	5	20.00
Subj 12	4	6	**66.67**	5	8	62.50
Subj 14	5	9	55.56	5	9	55.56
Subj 17	5	7	**71.43**	3	6	50.00
Subj 1	5	8	62.50	3	9	33.33
Subj 7	4	9	44.44	4	7	57.14
Subj 10	2	6	33.33	3	9	33.33
Subj 13	6	8	**75.00**	4	8	50.00
Subj 18	5	9	55.56	2	7	28.57
Subj 4	1	9	11.11	4	7	57.14
Subj 3	5	9	55.56	3	9	33.33
Subj 16	5	8	62.50	4	9	44.44
Subj 2	3	8	37.50	4	9	44.44
Subj 9	3	8	37.50	4	9	44.44
Subj 28	2	8	25.00	5	9	55.56
Subj 27	3	9	33.33	4	7	57.14
Subj 20	3	8	37.50	6	9	**66.67**
Subj 30	2	7	28.57	3	8	37.50
Subj 26	6	9	**66.67**	4	9	44.44
Subj 25	4	9	44.44	4	8	50.00
Subj 31	5	9	55.56	4	8	50.00
Subj 29	5	9	55.56	5	8	62.50
Subj 24	6	9	**66.67**	5	9	55.56
Subj 21	8	9	**88.89**	5	9	55.56
Subj 22	5	7	**71.43**	4	9	44.44
Subj 23	5	8	62.50	5	9	55.56
Subj 32	6	9	**66.67**	6	9	**66.67**

Chinese Subjects Accuracy on Transitive vs. Intransitive Verbs

Appendix F: Native Mandarin speakers' judgments of target sentences translated into both resultative types

Test Sentence	Judgments of morphologically unmarked resultative										Judgments of *de* resultative									
1a. Mary washed the dishes clean.	√	*	√	√	√	?	√	?	√	√	√	?	?	*	*	*	?	*	?	*
b. Mary cut Sarah's hair short.	√	√	√	√	√	?	√	√	√	√	?	*	*	*	*	*	*	?	*	?
c. Mary smashed the black pepper fine.	√	√	√	√	√	?	√	√	√	√	*	*	√	*	*	*	*	*	?	*
2a. Mary ran her feet sore.	?	√	*	?	?	√	√	*	√	√	√	√	√	√	√	√	√	√	√	√
b. Mary danced her shoes worn.	*	3	√	?	?	√	√	√	√	√	√	√	√	√	*	√	√	√	√	√
c. The rooster crowed Mary awake.	√	√	√	√	?	√	√	√	√	√	?	*	*	√	*	*	√	?	√	*
3a. Mary dragged the log smooth.	*	√	√	√	*	?	√	√	*	*	*	*	*	*	*	*	√	?	√	*
b. Mary dropped the glass broken.	√	√	√	√	√	√	√	√	√	√	?	*	*	*	*	*	√	*	√	*
c. Mary's mother praised her proud.	*	*	*	*	*	*	*	*	?	*	√	*	?	√	*	*	√	√	√	√
4a. Mary snored Sarah awake.	?	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
b. Mary waited her mother impatient.	?	*	*	*	*	*	*	*	*	*	√	*	?	√	*	√	√	√	√	√
c. The principal shouted Mr. Jones angry.	*	*	?	*	*	*	*	*	*	*	√	√	√	√	√	√	√	√	√	√
5a. Mary watered the flowers flat.	?	*	*	*	*	*	*	*	?	*	*	*	*	*	*	*	*	*	*	*
b. The dryer spun her jacket dry.	√	√	√	*	√	?	√	√	√	√	*	√	√	√	*	?	√	?	?	√
c. The hot coals burned Carl's feet blistered.	*	*	*	*	*	*	*	*	*	*	√	√	√	√	√	√	√	√	√	√
6a. Sarah laughed herself sick.	*	?	?	*	*	*	*	*	√	*	√	*	√	?	*	*	*	*	√	*
b. Mary worried her mother sick.	*	*	?	*	*	*	*	*	*	*	?	*	*	*	*	*	*	√	*	*
c. Carl drank himself stupid.	*	*	*	*	*	*	*	*	*	*	√	√	√	?	?	?	√	√	√	√
7a. Carl banged the metal plate dented.	√	√	√	?	?	√	√	√	√	√	√	√	√	√	?	?	√	√	√	√
b. Mary boiled the soup salty.	*	√	?	?	?	?	*	√	√	*	√	*	√	√	?	√	√	√	√	?
c. Sarah cut the painting destroyed.	√	√	√	√	?	√	√	√	√	√	*	*	√	?	?	*	√	√	√	*
8a. Mary ate her stomach sick.	√	√	√	?	√	√	√	√	√	√	√	*	√	√	√	*	√	√	√	*
b. Mary shouted herself fainted.	*	*	*	?	*	*	*	*	?	?	?	√	√	√	?	*	√	√	√	√
c. Mary cried the handkerchief soggy	√	√	√	*	*	√	*	√	√	√	√	√	√	√	?	?	√	√	√	√

Appendix G: L1 Chinese Results Reanalyzed

L1 Chinese Results: Acceptance of sentences whose English analogues of the *de* variant are grammatical and ungrammatical and sentences whose English analogues of the morphologically simple variant are grammatical and ungrammatical

	Analogues of *de* resultatives, **grammatical** in English		Analogues of *de* resultatives, **ungrammatical** in English		Analogues of morphologically simple resultatives, **grammatical** in English		Analogues of morphologically simple resultatives, **ungrammatical** in English	
	N = 4	%	N = 2	%	N = 2	%	N = 2	%
Subject 19	2 of 4	50%	1 of 2	50%	2 of 2	100%	1 of 2	50%
Subject 6	1 of 4	25%	0 of 2	0%	2 of 2	100%	1 of 2	50%
Subject 11	2 of 4	50%	1 of 1	100%	1 of 2	50%	1 of 2	50%
Subject 15	3 of 4	75%	2 of 2	100%	2 of 2	100%	2 of 2	100%
Subject 5	3 of 4	75%	1 of 2	50%	2 of 2	100%	1 of 2	50%
Subject 8	1 of 2	50%	1 of 1	100%	1 of 2	50%	0 of 2	0%
Subject 12	2 of 3	66.67%	0 of 2	0%	1 of 2	50%	1 of 1	100%
Subject 14	1 of 4	25%	1 of 2	50%	2 of 2	100%	1 of 2	50%
Subject 17	1 of 2	50%	0 of 2	0%	1 of 2	50%	1 of 1	100%
Subject 1	1 of 4	25%	1 of 2	50%	2 of 2	100%	2 of 2	100%
Subject 7	3 of 3	100%	2 of 2	100%	1 of 2	50%	1 of 2	50%
Subject 10	2 of 4	50%	1 of 1	100%	0 of 2	0%	1 of 1	100%
Subject 13	2 of 4	50%	1 of 2	50%	1 of 2	50%	1 of 2	50%
Subject 18	2 of 4	50%	1 of 2	50%	1 of 2	50%	1 of 2	50%
Subject 4	1 of 3	33.33%	2 of 2	100%	0 of 2	0%	2 of 2	100%
Subject 3	1 of 4	25%	1 of 2	50%	2 of 2	100%	1 of 2	50%
Subject 16	2 of 4	50%	2 of 2	100%	1 of 2	50%	0 of 2	0%
Subject 2	3 of 4	75%	2 of 2	100%	1 of 2	50%	1 of 2	50%
Subject 9	3 of 4	75%	1 of 1	100%	2 of 2	100%	1 of 2	50%
Subject 28	1 of 4	25%	1 of 2	50%	1 of 2	50%	2 of 2	100%
Subject 27	3 of 4	75%	2 of 2	100%	2 of 2	100%	2 of 2	100%
Subject 20	2 of 4	50%	2 of 2	100%	2 of 2	100%	2 of 2	100%
Subject 30	3 of 4	75%	2 of 2	100%	1 of 2	50%	2 of 2	100%
Subject 26	1 of 4	25%	1 of 2	50%	2 of 2	100%	0 of 2	0%
Subject 25	3 of 4	75%	1 of 2	50%	1 of 2	50%	1 of 2	50%
Subject 31	1 of 4	25%	0 of 2	0%	1 of 2	50%	1 of 2	50%
Subject 29	0 of 4	0%	0 of 2	0%	1 of 2	50%	2 of 2	100%
Subject 24	1 of 4	25%	1 of 2	50%	2 of 2	100%	1 of 2	50%
Subject 21	0 of 4	0%	0 of 2	0%	2 of 2	100%	0 of 2	0%
Subject 22	0 of 4	0%	1 of 2	50%	1 of 1	100%	1 of 2	50%
Subject 23	1 of 4	25%	2 of 2	100%	1 of 2	50%	1 of 2	50%
Subject 32	0 of 4	0%	2 of 2	100%	1 of 2	50%	1 of 2	50%

Appendix H: L1 Chinese Results Reanalyzed

L1 Chinese Results: Acceptance of English resultatives whose analogues are grammatical in both the morphologically simple resultative and the *de* resultative in Chinese

	Total acceptance (N = 6)		Acceptance of those Grammatical in English** (N = 3)		Acceptance of those Ungrammatical in English (N = 3)	
Subject 19	1 of 5	20%	1 of 3	33.3%	0 of 2	0%
Subject 6	1 of 5	20%	0 of 2	0%	1 of 3	33.3%
Subject 11	2 of 4	50%	1 of 3	33.3%	1 of 1	100%
Subject 15	**3 of 4**	**75%**	2 of 2	100%	1 of 2	50%
Subject 5	3 of 6	50%	1 of 3	33.3%	2 of 3	66.7%
Subject 8	**5 of 5**	**100%**	**2 of 2**	**100%**	**3 of 3**	**100%**
Subject 12	1 of 4	25%	1 of 3	33.3%	0 of 1	0%
Subject 14	0 of 6	0%	0 of 3	0%	0 of 3	0%
Subject 17	1 of 4	25%	1 of 3	33.3%	0 of 3	0%
Subject 1	2 of 5	40%	1 of 3	33.3%	1 of 2	50%
Subject 7	3 of 6	50%	1 of 3	33.3%	2 of 3	66.7%
Subject 10	**4 of 4**	**100%**	**2 of 2**	**100%**	**2 of 2**	**100%**
Subject 13	1 of 5	20%	1 of 3	33.3%	0 of 2	0%
Subject 18	**4 of 5**	**80%**	3 of 3	100%	1 of 2	50%
Subject 4	2 of 6	33.3%	0 of 3	0%	2 of 3	66.7%
Subject 3	**4 of 6**	**66.7%**	**2 of 3**	**66.7%**	**2 of 3**	**66.7%**
Subject 16	3 of 5	60%	2 of 3	66.7%	1 of 2	50%
Subject 2	2 of 5	40%	2 of 3	66.7%	0 of 2	0%
Subject 9	**4 of 6**	**66.7%**	**2 of 3**	**66.7%**	**2 of 3**	**66.7%**
Subject 28	1 of 5	20%	1 of 3	33.3%	0 of 2	0%
Subject 27	**4 of 4**	**100%**	**2 of 2**	**100%**	**2 of 2**	**100%**
Subject 20	2 of 5	40%	2 of 3	66.7%	0 of 2	0%
Subject 30	1 of 3	33.3%	1 of 2	50%	0 of 1	0%
Subject 26	**4 of 6**	**66.7%**	**2 of 3**	**66.7%**	**2 of 3**	**66.7%**
Subject 25	3 of 6	50%	2 of 3	66.7%	1 of 3	33.3%
Subject 31	3 of 5	60%	2 of 3	66.7%	1 of 2	50%
Subject 29	1 of 5	20%	1 of 3	33.3%	1 of 2	0%
Subject 24	3 of 6	50%	2 of 3	66.7%	1 of 3	33.3%
Subject 21	**5 of 6**	**83.3%**	**3 of 3**	**100%**	**2 of 3**	**66.7%**
Subject 22	**5 of 5**	**100%**	**2 of 2**	**100%**	**3 of 3**	**100%**
Subject 23	**4 of 5**	**80%**	3 of 3	100%	1 of 2	50%
Subject 32	2 of 6	33.3%	1 of 3	33.3%	1 of 3	33.3%

**Two of the three sentences were rejected by the native English speakers, contrary to what was expected

L1 Chinese Results: Acceptance of English resultatives whose analogues are ungrammatical in both the morphologically simple resultative and the *de* resultative in Chinese

	Total acceptance (N=5)		Acceptance of those Grammatical in English** (N = 3)		Acceptance of those Ungrammatical in English (N = 2)	
Subject 19	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 6	1 of 5	20%	0 of 3	0%	1 of 2	50%
Subject 11	0 of 3	0%	0 of 1	0%	0 of 2	0%
Subject 15	**4 of 5**	**80%**	**2 of 3**	**66.67%**	**2 of 2**	**100%**
Subject 5	**3 of 4**	**75%**	**2 of 3**	**66.67%**	**1 of 1**	**100%**
Subject 8	1 of 4	25%	0 of 2	0%	1 of 2	50%
Subject 12	3 of 5	60%	3 of 3	100%	0 of 2	0%
Subject 14	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 17	1 of 5	20%	1 of 3	33.33%	0 of 2	0%
Subject 1	2 of 5	40%	0 of 3	0%	1 of 2	50%
Subject 7	**3 of 4**	**75%**	3 of 3	100%	0 of 1	0%
Subject 10	3 of 5	60%	2 of 3	66.67%	1 of 2	50%
Subject 13	1 of 4	25%	1 of 3	33.33%	0 of 1	0%
Subject 18	0 of 4	0%	0 of 3	0%	0 of 1	0%
Subject 4	1 of 4	25%	1 of 3	33.33%	0 of 1	0%
Subject 3	2 of 5	40%	0 of 3	0%	2 of 2	100%
Subject 16	1 of 5	20%	0 of 3	0%	1 of 2	50%
Subject 2	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 9	**4 of 5**	**80%**	**2 of 3**	**66.67%**	**2 of 2**	**100%**
Subject 28	2 of 5	40%	0 of 3	0%	2 of 2	100%
Subject 27	**4 of 4**	**100%**	**3 of 3**	**100%**	**1 of 1**	**100%**
Subject 20	1 of 5	20%	0 of 3	0%	1 of 2	50%
Subject 30	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 26	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 25	1 of 3	33.3%	1 of 2	50%	0 of 1	0%
Subject 31	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 29	0 of 5	0%	0 of 3	0%	0 of 2	0%
Subject 24	0 of 5	0%	0 of 3	0%	0 of 2	0%
Subject 21	2 of 5	40%	1 of 3	33.33%	1 of 2	50%
Subject 22	2 of 4	50%	1 of 3	33.33%	1 of 1	100%
Subject 23	3 of 5	60%	2 of 3	66.67%	1 of 2	50%
Subject 32	2 of 5	40%	1 of 3	33.33%	1 of 2	50%

**One of these three sentences was rejected by the native English speakers, contrary to what was expected

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